

A review of the orchid diversity of Andaman & Nicobar Islands, India^a

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Mots-clés/Keywords : Andaman, archipelago/archipel, biodiversity/biodiversité, islands/îles, Nicobar, orchids/orchidées.

Abstract

A comprehensive study on the orchid diversity in Andaman & Nicobar Islands, India was conducted from 1999 to 2014. Special attention was given to the endemic orchids of the islands, their rarity and distribution within the islands. To date, a total of 143 orchid taxa (140 species and 3 subspecies belonging to 66 genera) were identified. Twenty three of the species proved to be endemic. Knowledge from botanical explorations in the islands and from the study of herbarium collections and a detailed literature search allow us to provide an up-to-date review of the status of the orchids of Andaman & Nicobar Islands.

Résumé

Révision de la diversité de la flore d'orchidées des îles Andaman & Nicobar (Inde) – Une étude exhaustive de la diversité des orchidées sur les îles Andaman & Nicobar a été menée de 1999 à 2014. Une attention particulière a été accordée aux orchidées endémiques de ces îles, leur rareté et leur distribution à l'intérieur des îles. A ce jour, un total de 143 taxons (140 espèces et trois sous-espèces, appartenant à 66 genres) ont été identifiés. Vingt trois d'entre elles se sont avérées être endémiques. Les connaissances issues d'une part des explorations botaniques sur ces îles et d'autre part de l'étude des collections conservées dans les herbiers et de la littérature nous ont permis de proposer un bilan actualisé du statut des orchidées des îles Andaman & Nicobar.

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Introduction

The Earth's 100,000 islands are exceptionally rich reservoirs of biodiversity. Islands cover about 3 % of the world's surface yet they typically support a substantial proportion of biodiversity and endemic species in particular. Patterns of species diversity on islands have yielded significant insights into the evolutionary and ecological processes such as immigration, speciation and extinction (Witt & Maliakal-Witt, 2007). Islands frequently have distinctive and often very unique composition of species. Generally, as compared to the continental areas, they show lower species diversity but tend to have more endemic species. A third of all the threatened species are island endemics (Primack, 2000). In general, the rate of extinction of species in both historic and pre-historic times was high on the Islands as compared to the rate of extinction on continents (Groombridge, 1995). Environmentally fragile and economically vulnerable, islands are home to some of the Earth's most exclusive life-forms and ecosystems. Island ecosystems are visibly unbalanced and species are threatened with extinction. The biodiversity 'crisis' is thus nowhere more apparent and the need for action is nowhere more urgent than on remote islands (Triantis *et al.*, 2010). Habitat destruction results in the species being reduced to a few small, isolated populations. Habitat destruction and fragmentation is universally associated with human colonisation (Whittaker & Fernandez-Palacios, 2007). The other important factors are the introduction of non-native species, tourism development, climate change, natural disasters, over-exploitation, pollution and waste (Whittaker & Fernandez-Palacios, 2007; Convention on Biological Diversity, 2014).

Orchids are notorious for their stringent habitat requirements, a factor contributing to their rarity (Cribb *et al.*, 2003). Environmental factors pose significant threat on the species richness of orchids. The family Orchidaceae is one of the most diverse and largest families of flowering plants. There are about 20,000 to 35,000 orchid species in the world (Dressler, 1993; Mabberley, 2008) making it the second largest of the flowering plant families next to Asteraceae. Orchids fascinate people more than any other plants do and have been exploited for centuries for their attractive flowers. Through evolution, their flower structure has become highly specialised. In respect to plant systematics, they are the most advanced group. They grow over a wide range of conditions and are found in swamps, deserts, forests and grasslands (Dressler, 1981; 1993).

India is one of the major orchid habitats of the world with diverse climatic and topographic conditions. A very large variety of beautiful, abundant orchids is found, growing as terrestrial, epiphytic and mycoheterotrophic plants. Due to its richness, the orchid flora in the Indian subcontinent has long been a group of interest for many botanists right from the colonial period. Orchidaceae is the largest flowering plant family in India with about 1,331 species in 184 genera (Misra, 2007), forming 9 % of the flora of India. Some of the regions with high orchid diversity within the country are the Himalayas, North-East India, the Western Ghats and the Andaman & Nicobar Islands. The present study is aimed to inventorise and assess the orchid flora of Andaman & Nicobar Islands to throw light on the up-to-date status and diversity of orchid flora of this ecologically sensitive island ecosystem of India.

Study area

The Andaman & Nicobar archipelago is an unique phytogeographical province of India and consists of 572 islands and islets in the Bay of Bengal situated between 6°-14° N and 92°-94° E, off the coast of S.E. Asia about 571 km from the Malay peninsula and 1,330 km from southern India (Fig. 1). The northern islands in the Andaman group are approximately 285 km from Myanmar. The Andaman group of islands is separated from the Nicobar group of islands by a 155 km wide deep sea-channel called the ten degree channel, so named as it lies on the 10° line of latitude. The total land mass of the islands is about 8,290 sq.km in which most of the terrain is hilly and undulated. The highest hill in the Andaman group is Saddle peak reaching a height of about 732 m. The highest point in the Nicobar group is the top of Mt. Thullier at about 670 m above sea level. The coastline is 1,960 km long and highly indented and several creeks penetrate into the islands from inland bays. The monsoonal regime of south-eastern Asia governs the climate of the islands. The climate is tropical and oceanic with rainfall from both the south-west and north-east monsoons with the average annual rainfall ranging from 3,000 to 3,800 mm. The general climatic condition of the islands is that of the warm and humid tropics with the temperature ranging between 22°C and 30°C. About 80 % of the area of these islands is under forest cover. The insular nature of the Islands and their isolation from the mainland have provided the islands with unique flora showing close affinity with the Myanmar, Malaysian and Indonesian floras (Rao,

1999). The climate on the islands allows a wide range of habitats such as dense mangrove forests, littoral and swamp forests, luxuriant moist evergreen forests, moist deciduous forests and stunted hill top forests that support abundant growth of orchids (Fig. 2).



Fig. 1: Geographical location of Andaman & Nicobar Islands

Material and methods

Intensive botanical explorations were carried out for field collections in the islands for seven years from 1999 to 2005. For the preparation of herbarium material, the specimens were treated with a Formaldehyde, Acetic acid and Alcohol solution (FAA). Live collections were also made for introduction in the garden at Botanical Survey of India, Port Blair and Dhanikari Experimental Garden, South Andaman. Flowering materials were also preserved as spirit collection. All the macromorphological characters, such as habit, flower colour, odour etc were carefully noted. Details on host species in case of epiphytes, rarity, habitat and ecology, and associated species were entered in the field book. The collected specimens were identified using available floras, and through comparison with herbarium material at PBL and CAL. The herbarium specimens collected and identified were deposited in PBL. The type specimens of the new taxa described during the study were deposited at CAL. The collections of orchids from Andaman & Nicobar Islands held at PBL, CAL and K



Fig. 2 – Different types of orchids habitats

(available in the online Kew Herbarium Catalogue) were also examined during the study. Rarity and commonness of the orchid species were assessed based on field knowledge and the study of their distribution based on herbarium depositions as well as literature.

Information on the orchid diversity of the Andaman & Nicobar Islands was collected from the available literature (Grant, 1895; Seidenfaden & Smitinand, 1959; Thothathri, 1962; Seidenfaden, 1976; 1983; 1985; 1986; 1988; 1992; Balakrishnan, 1976; 1977; 1983; 1989; Balakrishnan & Bhargava, 1977; 1978; 1979; Hore & Balakrishnan, 1985; Vasudeva Rao 1986; Karthikeyan *et al.*, 1989; Ellis, 1986; 1989; Seidenfaden & Wood, 1992; Sarkar, 1986; 1995; Kumar & Manilal, 1992; 1994; Hajra & Rao, 1999; Sinha, 1999; Comber, 1990; 2001; Sinha *et al.*, 2001; Shiva *et al.*, 2003; Gupta *et al.*, 2004; Singh *et al.*, 2004; Singh & Medhi 2006; Misra, 2007; Pandey & Diwakar, 2008; Karthigeyan *et al.*, 2010a; 2010b; Alappatt, 2011; 2013; Sumathi *et al.*, 2013; Karthigeyan *et al.*, 2014; Jayanthi *et al.*, 2014) and after which the data was re-evaluated. The current nomenclature and status of each taxon was further determined by referring to databases, such as The International Plant Names Index (www.ipni.org, 2014), The Plant List (www.theplantlist.org, 2014), Tropicos (www.tropicos.org, 2014) and World Checklist of Selected Plant Families (apps.kew.org/wcsp, 2014).

A complete list of orchids hitherto reported from the islands is proposed. The list includes basionyms as well as widely known synonyms. Details on habit, habitat, distribution, (including endemism, rarity, range of occurrence and phytogeographical distribution) are also provided.

Results and discussion

The orchids, represented by 143 taxa (140 species and 3 subspecies belonging to a total of 66 genera) are one of the most prominent groups within the flora of the Andaman & Nicobar Islands. For various reasons (such as misidentification of taxa, the lack of specimens or the absence of pertinent literature), twelve species have been excluded from this paper. Ninety eight taxa are epiphytes. Another 45 taxa are terrestrial herbs (Fig. 3) which also include mycoheterotrophic orchids such as *Eulophia zollingeri*¹, *Erythrorchis altissima* and climbers like *Vanilla* spp. Orchid distribution between Andaman & Nicobar Islands reveals that orchid diversity in the former is higher than in the latter. Ninety one orchid taxa

¹ Authorities of orchid names are given in Section “Enumeration of taxa”.

found in Andaman Islands (including both endemic taxa and taxa occurring in the neighboring countries) are quite absent in Nicobar Islands. Similarly, 28 taxa occurring in the Nicobar Islands are absent in Andaman Islands. Twenty four taxa are present in both Andaman and Nicobar Islands (Fig. 4). *Dendrobium* (17 species) and *Bulbophyllum* (14 species) show the highest species diversity. *Anoectochilus*, *Eria* and *Habenaria* are represented by only endemic species.

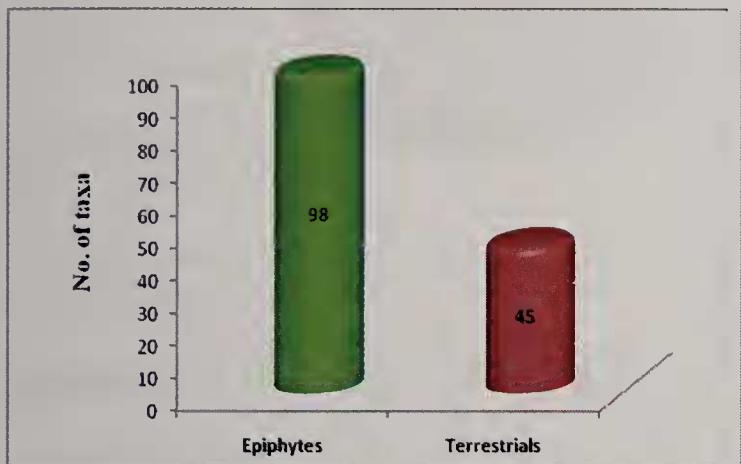


Fig. 3: Habit-wise distribution

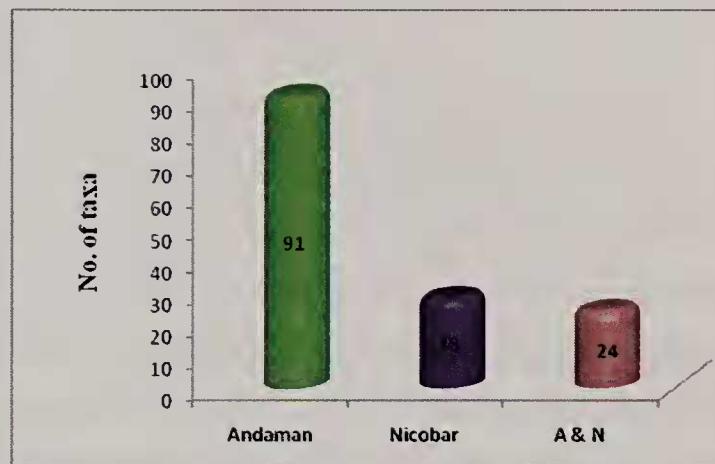


Fig. 4: Distribution within Andaman & Nicobar Islands

Distribution & Phytoogeographical affinities of the orchid flora of Andaman & Nicobar – The Andaman & Nicobar Islands are considered under one of the “level-2 regions” (Indo-china of Asia-Tropical) by the World geographical scheme for recording plant distributions (Mittermeier *et al.*, 1999; Brummitt, 2001). The Andaman group of Islands belongs to the Indo-Burma hotspot, whereas the Nicobar Islands fall under the Sundaland hotspot (Conservation International, 2014). Similar to the general flora, the orchid flora of the islands also shows close affinities with Myanmar, Malaysian and Indonesian floras. Species such as *Coelogyne trinervis*, *C. quadratiloba*, *Porpax meirax*, *Trias oblonga*, *Thunia alba* and *Vanda ampullacea* are present in North-East India, Myanmar, Thailand and Andaman Islands. The pantropical *Polystachya concreta* is also found to occur (Kumar & Manilal, 1994). *Erythrorchis altissima*, a curious mycoheterotrophic climbing orchid, hitherto known from North-East region of India was found in Great Nicobar Island (Jayanthi *et al.*, 2006a). The climatic conditions of the Western Ghats of peninsular India and Sri Lanka are similar to those prevailing on the Andaman & Nicobar Islands as all those areas lie within the same tropical zone. Although these areas are

separated by the Bay of Bengal, they show some similarities in their floristic composition. A few orchids occurring in peninsular India such as *Calanthe triplicata*, *Corymborkis veratrifolia*, *Dendrobium macrostachyum*, *Conchidium muscicola*, *Eulophia graminea*, *Geodorum densiflorum*, *Phalaenopsis deliciosa*, *Nervilia concolor*, *Papilio-nanthe teres*, *Thelasis pygmaea* and *Thrixspermum trichoglottis* are also found on the Andaman & Nicobar Islands.

A phytogeographic analysis shows that the orchid flora of Andaman & Nicobar Islands is dominated by Indochinese & Malesian (30 %), Indomalesian (24%), Indochinese (20%), Malesian (9%) and Indian (1%) elements. The remaining species (16%) are endemic (Fig. 5).

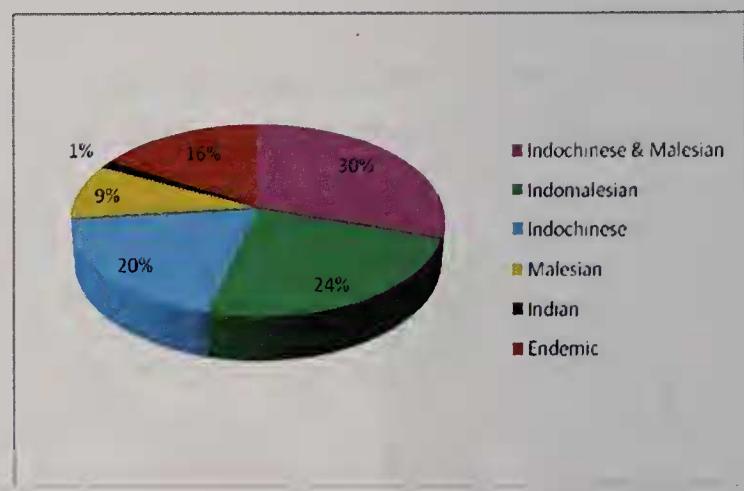


Fig. 5: Phytogeographical analysis of orchids in Andaman & Nicobar Islands

Habitat preferences – Most orchid species occurs in the inland forests. Species such as *Aerides multiflorum*, *Pholidota imbricata*, *Luisia tristis*, *Dendrobium plicatile* etc. are common in the littoral forests. It is quite interesting to note that some orchid species such as *Bulbophyllum crassipes*, *Cymbidium bicolor*, *Dendrobium aphyllum*, *Dendrobium crumenatum* etc. are also found growing abundantly in disturbed, open areas, especially along the road sides. The most common orchids on the islands are *Bulbophyllum crassipes*, *B. flabellum-veneris*, *Coelogyne trinervis*, *Cymbidium aloifolium*, *Dendrobium polyanthum*, *D. crumenatum*, *D. secundum*, *Dienia ophydis*, *Geodorum densiflorum*, *Pholidota imbricata*, *Pinalia bractescens*, *Pomatocalpa maculosua* subsp. *andamanica*, *Rhynchostylis retusa* etc. The luxuriant and impenetrable mangrove forests of the islands are also one of the preferred habitats for species like *Bulbophyllum crassipes*, *B. flabellum-veneris*, *B. serratotruncatum*, *Dendrobium formosum*, *D. plicatile*, *Grosourdya appendiculata* etc. whereas species such as *Anoectochilus narasimhanii*, *Bulbophyllum tenuifolium*, *Conchidium extintoria*, *C. muscicola*, *Cryptostylis arachnites*, *Peristylus balakrishnanii*, *P. monticola*, *Porpax spp.*, *Trias oblonga* and *Vanda ampullacea* occur only in stunted hilltop forests.

Host preferences – The host trees which form a good habitat for orchid species along the coastal areas include *Terminalia catappa*, *Barringtonia asiatica*, *Ficus microcarpa* etc (see Table 1). The moss laden tree trunks, especially those with flaky and fissured bark provide a perfect substrate for the epiphytic orchids. They are commonly found associated with other epiphytes such as the ferns *Asplenium nidus*, *Pyrrosia lanceolata*, *Drynaria quercifolia* and the angiosperms *Aeschynanthus griffithii*, *Dischidia benghalensis*, *D. nummularia*, *Hoya parasitica* etc. Luxuriant colonies of epiphytes on the tree trunks are common in many parts of these islands.

No	Plant Name	Family
1	<i>Acronychia pedunculata</i> (C.Linnaeus) F.A.W.Miquel	Rutaceae
2	<i>Aglaia lawii</i> (R.Wight) C.J.Saldanha ex T.P.Ramamoorthy	Meliaceae
3	<i>Albizia saman</i> (N.J.Jacquin) F.J.H.Mueller	Mimosaceae
4	<i>Areca catechu</i> C.Linnaeus	Arecaceae
5	<i>Artocarpus chama</i> F.Buchanan-Hamilton	Moraceae
6	<i>Artocarpus heterophyllus</i> J.P.A.P.Lamarck	Moraceae
7	<i>Barringtonia asiatica</i> (C.Linnaeus) W.S.Kurz	Lecythidaceae
8	<i>Bruguiera gymnorhiza</i> (C.Linnaeus) J.P.A.P.Lamarck	Rhizophoraceae
9	<i>Calophyllum austroindicum</i> A.J.G.Kostermans ex P.F.Stevens	Clusiaceae
10	<i>Calophyllum calaba</i> var. <i>bracteatum</i> (R.Wight) P.F.Stevens	Clusiaceae
11	<i>Calophyllum inophyllum</i> C.Linnaeus	Clusiaceae
12	<i>Calophyllum soulattri</i> N.L.Burman	Clusiaceae
13	<i>Chydenanthus excelsus</i> (C.Blume) J.Miers	Lecythidaceae
14	<i>Crypteronia paniculata</i> C.Blume	Crypteroniaceae
15	<i>Cynometra ramiflora</i> C.Linnaeus	Caesalpiniaceae
16	<i>Dipterocarpus</i> spp.	Dipterocarpaceae
17	<i>Excoecaria agallocha</i> C.Linnaeus	Euphorbiaceae
18	<i>Ficus microcarpa</i> C.Linnaeus f.	Moraceae
19	<i>Gironniera subaequalis</i> J.E.Planchon	Ulmaceae
20	<i>Glochidion zeylanicum</i> (J.Gaertner) A.H.L.Jussieu	Euphorbiaceae

21	<i>Guettarda speciosa</i> C.Linnaeus	Rubiaceae
22	<i>Heritiera littoralis</i> W.Aiton	Sterculiaceae
23	<i>Hernandia nymphaeifolia</i> (C.B.Presl) K.Kubitzki	Hernandiaceae
24	<i>Kibara coriacea</i> (C.Blume) L.R.Tulasne	Monimiaceae
25	<i>Knema andamanica</i> (O.Warburg) W.J.de Wilde	Myristicaceae
26	<i>Lagerstroemia hypoleuca</i> W.S.Kurz	Lythraceae
27	<i>Mangifera andamanica</i> G.King	Anacardiaceae
28	<i>Mangifera indica</i> C.Linnaeus	Anacardiaceae
29	<i>Manilkara littoralis</i> (W.S.Kurz) M.M.M.Dubard	Sapotaceae
30	<i>Pandanus dubius</i> C.P.J.Sprengel	Pandanaceae
31	<i>Pongamia pinnata</i> (C.Linnaeus) J.P.L.Pierre	Fabaceae
32	<i>Pterocarpus dalbergioides</i> W.Roxburgh	Fabaceae
33	<i>Tectona grandis</i> C.Linnaeus f.	Verbenaceae
34	<i>Terminalia bialata</i> (W.Roxburgh) E.G.Steudel	Combretaceae
35	<i>Terminalia catappa</i> C.Linnaeus	Combretaceae
36	<i>Terminalia procera</i> W.Roxburgh	Combretaceae
37	<i>Thespesia populnea</i> (C.Linnaeus) D.C.Solander ex J.F.Correa	Malvaceae
38	<i>Xylocarpus moluccensis</i> (J.P.A.P.Lamarck) M.J.Roemer	Meliaceae

Table 1: List of common host tree species

Endemism – Island species richness and endemism are salient parameters for biologists and conservationists (Witt & Maliakal-Witt, 2007). Many islands are considered to be global biodiversity hotspots because of high endemicity of insular biota (Kreft *et al.*, 2008). Insular taxa are more prone to extinction since they are vulnerable to anthropogenic disturbance and random climatic changes. Endemism is considered as one of the most important criteria for the identification of high-priority areas for conservation (Mittermeier *et al.*, 1998). As we have seen above, 16% (23 species) of the orchid taxa occurring on the Andaman and Nicobar Islands are endemics. Among these, 15 species are strictly endemic to the Andaman group of Islands and 7 species are restricted to the Nicobar group of Islands. *Aerides emericii* is the only endemic species found to occur

on both Andaman & Nicobar groups of islands. The endemic orchid flora of the islands is characterised by the occurrence of several species with an extremely narrow range of distribution. Species such as *Anoectochilus narasimhanii*, *Dendrobium gunnarii*, *D. shompenii*, *Eulophia nicobarica*, *Peristylus balakrishnanii*, *Taeniophyllum andamanicum*, *Vanilla sanjappae* etc are extremely rare and known so far only from their type locality. It is interesting to note that the genus *Anoectochilus* is represented by 2 endemic species viz. *A. narasimhanii* endemic to Saddle peak on North Andaman Island and *A. nicobaricus* restricted to Great Nicobar Island. *Habenaria andamanica* and *H. osmastonii* are found in Andaman Islands whereas *H. nicobarica* is restricted to the Nicobars. The genus *Eria* is represented by a single endemic species *Eria andamanica*. Of the 23 endemic orchids, 11 are terrestrials and 12 are epiphytic. An attempt was also made for threat assessments and the endemic orchids were categorised based on the IUCN red list categories (2001: version 3.1). The list of endemic orchids, their distribution within the islands and threat category are provided in Figs. 6 & 7 and in Table 2.

Threats – Islands with small geographical areas are perfect places to study the effects of increasing human activities on the biological diversity. The endemic species of islands have little chance of finding alternate habitats when they are subjected to habitat loss. Hence, islands are also called “Death traps” of endemic species (Nayar, 1996). Habitat destruction, as a result of increasing human population in islands, is the main cause of depletion of biodiversity. Conversion of forests to agricultural fields, large scale cultivation of exotic plants for commercial purposes and monoculture of timber trees for extraction, are severe threats to the orchid diversity on the Andaman & Nicobar Islands (Balakriahnan & Vasudeva Rao, 1983). Epiphytic species are in danger of losing their natural habitat because of rapid dwindling of indigenous forests. In general, epiphytic species need tree branches of certain age and maturity for their colonization. Felling of selective timber trees, some of which are also preferred host species for epiphytic orchids, could swipe away the entire colony of orchids in one go. Since maximum endemism was observed in the closed canopy forests, the endemic epiphytic orchid population may become vulnerable if those intact shady forests are disturbed when the canopy is opened up. The ground orchids of the islands also face severe threat as a result of unplanned deforestation, herbivory and natural calamities like earthquakes, landslides and tsunamis. As an example, let us take the endemic orchid *Eulophia*

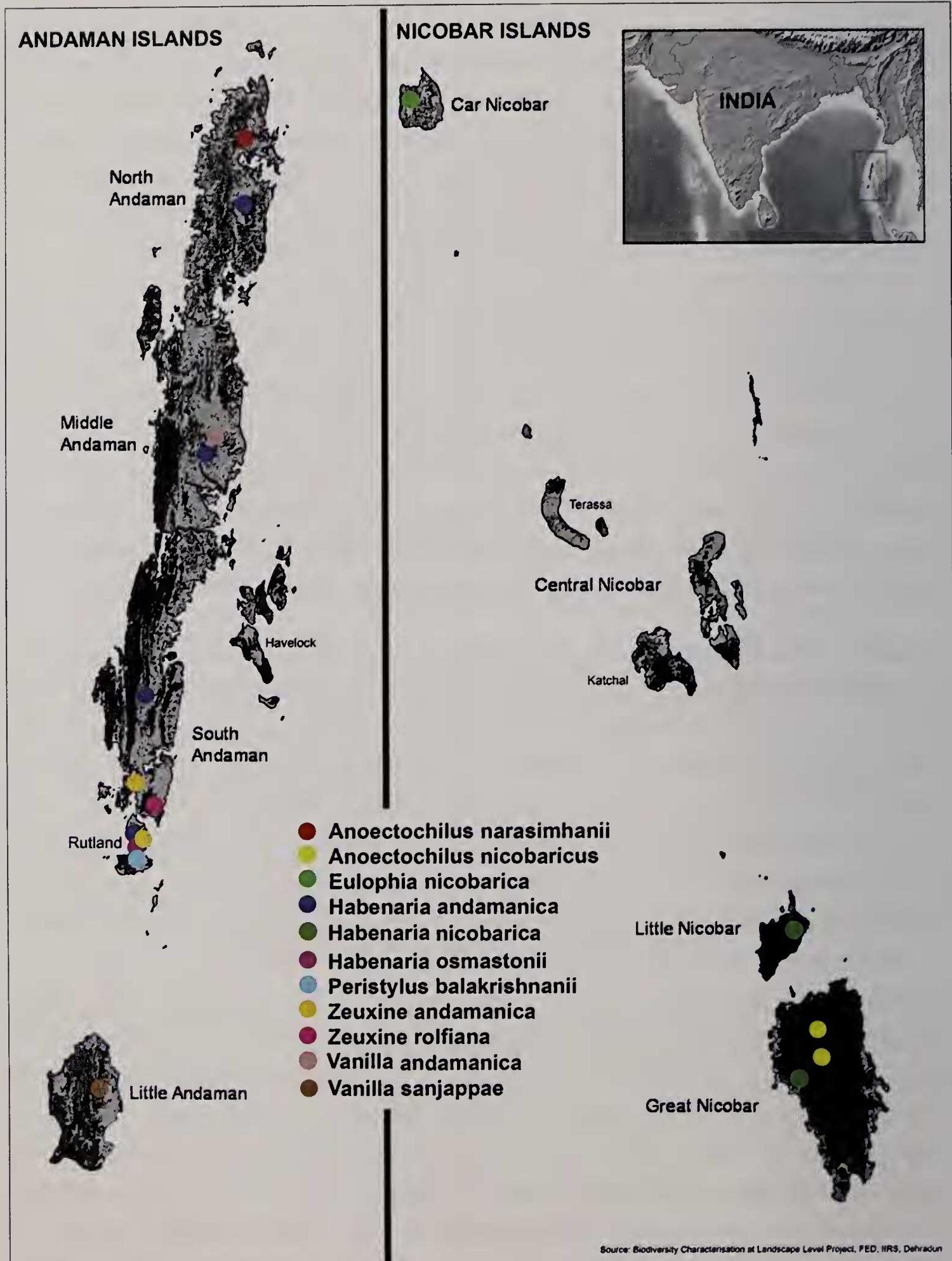


Fig. 6: Occurrence of endemic terrestrial orchids

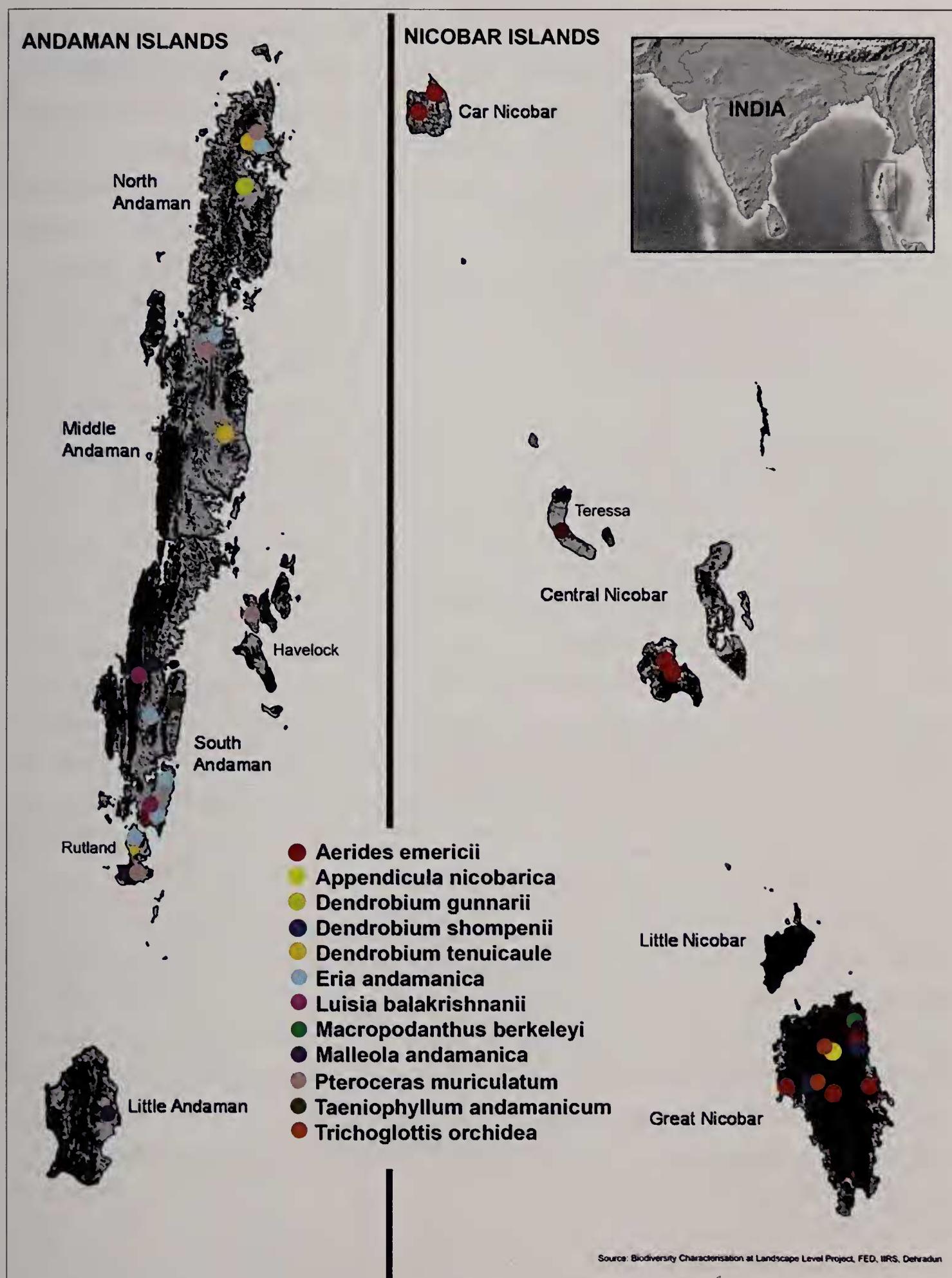


Fig. 7: Occurrence of endemic epiphytic orchids

No	Plant Name	A	N	Category
1	<i>Aerides emericii</i> H.G.Reichenbach	+	+	EN B2b(i,ii,iv)
2	<i>Anoectochilus narasimhanii</i> Sumathi et al.	+	-	CR B2a
3	<i>Anoectochilus nicobaricus</i> N.P.Balakrishnan & P.Chakraborty	-	+	CR B2a
4	<i>Appendicula nicobarica</i> Jayanthi et al.	-	+	CR B2a
5	<i>Dendrobium gunnarii</i> P.S.N.Rao	+	-	CR B2a
6	<i>Dendrobium shompenii</i> B.K.Sinha & P.S.N.Rao	-	+	EN B2a+b(ii,iv)
7	<i>Dendrobium tenuicaule</i> J.D.Hooker	+	-	EN B1a+b(iii,iv)
8	<i>Eria andamanica</i> J.D.Hooker	+	-	EN B2b(iii,iv,v)
9	<i>Eulophia nicobarica</i> N.P.Balakrishnan & N.G.Nair	-	+	CR B2a+b(ii,iii,iv)
10	<i>Habenaria andamanica</i> J.D.Hooker	+	-	ENB1a+b(ii,v)
11	<i>Habenaria nicobarica</i> C.Murugan et al.	-	+	EN B1a
12	<i>Habenaria osmastonii</i> K.Karthigeyan et al.	+	-	CR B2a
13	<i>Luisia balakrishnanii</i> S.Misra	+	-	EN B1a
14	<i>Macropodanthus berkeleyi</i> (H.G.Reichenbach) G.Seidenfaden & L.A.Garay	-	+	CR B2a
15	<i>Malleola andamanica</i> N.P.Balakrishnan & N.Bhargava	+	-	ENB2a+b(ii,iii,iv,v)
16	<i>Peristylus balakrishnanii</i> K.Karthigeyan et al.	+	-	CR B2a
17	<i>Pteroceras muriculatum</i> (H.G.Reichenbach) P.F.Hunt	+	-	ENB1ab(i,ii)
18	<i>Taeniophyllum andamanicum</i> N.P.Balakrishnan & N.Bhargava	+	-	CR B2a
19	<i>Trichoglottis orchidea</i> (J.G.Koenig) L.A.Garay	-	+	EN B1a
20	<i>Vanilla andamanica</i> R.A.Rolfe	+	-	CR B2a
21	<i>Vanilla sanjappae</i> L.Rasingam et al.	+	-	CR B2a
22	<i>Zeuxine andamanica</i> G.King & R.Pantling	+	-	CR B2a
23	<i>Zeuxine rolfiana</i> G.King & R.Pantling	+	-	CR B2a+b(i,ii,iii,iv)

Table 2: List of endemic orchids

A and N: +/- = present/absent in Andaman Islands or Nicobar Islands respectively.

Category = proposed IUCN category

nicobarica, so far reported only from Passa in Car Nicobar Island: during the 2004 tsunami, this island was severely damaged and a majority of the island's littoral zone was washed off. So far, this species has not been collected after the tsunami and the presence of this species remains doubtful.

The rain tree (*Albizia saman*), though not native to the flora of the islands, is one of the preferred hosts for several epiphytic orchids. Since these trees are not native to the islands and occur only along the road sides, the hosted orchid colonies face a serious threat, as we have observed that, in many areas, the bark of this tree, said to be used for brewing country liquor, was illegally taken.

Furthermore, the Kalpong Hydroelectric project dam constructed along the Kalpong River in North Andaman also caused damage to the orchid diversity of the Kalpong region.

Conservation – Orchids are of great importance mainly in horticulture and floriculture. Species like *Dendrobium formosum*, *Papilionanthe teres*, *Phalaenopsis tetraspis*, *Spathoglottis plicata*, *Thunia alba* etc. generate large, showy flowers which attract tourists and horticulturists. Conservation measures should be implemented to ensure long term survival. *In situ* conservation should be preferred since it preserves not only the species but also the whole ecosystem (Sharma *et al.*, 1998; Mudgal & Hajra, 1999).

The Department of Forests has been concentrating on the *in situ* conservation by hitherto establishing nine national parks, 96 wildlife sanctuaries and some biosphere reserves. It is suggested to identify more of these conservation areas especially areas dedicated to the conservation of orchids as orchid sanctuaries.

Ex situ conservation of rare, endangered and endemic orchids should be tried using modern biotechnological tools. Research and academic institutes like universities and colleges should be encouraged and trained to participate in this venture. The lack of taxonomic knowledge also hinders the conservation and sustainable use of resources.

The Botanical Survey of India is involved in the documentation and *ex situ* conservation of orchids in their experimental botanical garden established in Dhanikari, South Andaman. A thorough botanical survey and documentation of the flora and its biogeographic aspects on all under explored and unexplored islands may throw more light on the current status of the orchids on the islands.

Strict enforcement of the laws and stringent action against illegal poaching and disturbance of the vegetation should be given priority to ensure the conservation of the islands biodiversity in general and orchids in particular.

Enumeration of taxa

1. *Acampe* J.Lindley

Acampe rigida (F.Buchanan-Hamilton ex J.E.Smith) P.F.Hunt, *Kew Bulletin* 24: 98. 1970. *Aerides rigida* F.Buchanan-Hamilton ex J.E.Smith in A.Rees, *The Cyclopaedia* 39: *Aerides* n. 12. 1819.

Flower & Fruit: February-March & May-October.

Habit & Ecology: Epiphytes. Rare; in inland evergreen forests.

Distribution: Andaman Islands (Kalpong) (Diwakar *et al.*, 2005b).

Global distribution: China, Taiwan, India, Bangladesh, Nepal, Srilanka, Cambodia, Laos, Myanmar, Thailand, Vietnam, Malaysia, Philippines.

2. *Acriopsis* C.G.C.Reinwardt ex C.Blume

Acriopsis indica R.Wight, *Icones Plantarum Indiae Orientalis* 5: 20, pl. 1748. 1851.

Flower & Fruit: August-October.

Habit & Ecology: Epiphytes. Rare; in mangrove forests and moist deciduous forests forming small patches on the tree trunks of *Heritiera littoralis* Aiton, *Mangifera andamanica* King and *Pterocarpus dalbergioides* DC.

Distribution: Andaman Islands (Ray *et al.*, 1996).

Global distribution: China, India, Cambodia, Laos, Myanmar, Thailand, Vietnam, Indonesia, Malaysia, Philippines, Sulawesi.

Exsiccata: P.V. Sreekumar & L.N. Ray 16484, R.Sumathi 4824, K.Karthigeyan 6061.

Acriopsis liliifolia (J. Koenig) G.Seidenfaden, *Opera Botanica* 124: 58. 1995.

Epidendrum liliifolium J.Koenig in A.J.Retzius, *Observationes Botanicae* 6: 61. 1791. (Fig. 8A)

Flower & Fruit: August-January.

Habit & Ecology: Epiphytes. Rare; along exposed bright sunny places along the streamsides in evergreen forests.

Distribution: North Andaman (Kalpong) (Sumathi *et al.*, 2013).

Global distribution: India, Cambodia, Laos, Myanmar, Thailand, Vietnam, Indonesia, Malaysia, Moluccas, Philippines, Sulawesi, New Guinea, Australia.

Exsiccata: R. Sumathi 4822.

3. *Aerides* J. de Loureiro

Aerides emericii H.G.Reichenbach, *The Gardeners' Chronicle & Agricultural Gazette* n.s. 18: 586. 1882.

Flower & Fruit: April-July.

Habit & Ecology: Epiphytes. Rare; in lowland evergreen forests and in the littoral forests found growing on *Hernandia nymphaeifolia* (J. Presl) Kubitzki, *Heritiera littoralis* and *Terminalia catappa* Linnaeus.

Distribution: South Andaman, Car Nicobar, Katchal & Great Nicobar Island (Hore & Balakrishnan, 1985). **Endemic**.

Exsiccata: N.P. Balakrishnan 3956 & 5514, R.P. Dwivedi 8506 & 8515, D.K. Hore 7281 & 8216, T.A. Rao & S. Chakraborty 7636, J. Jayanthi 18334.

Notes: This is the only endemic orchid species occurring in both Andaman and Nicobar group of Islands. Though it is considered endemic it also occurs in the Great Coco island which falls under the political boundary of Myanmar.

Aerides multiflora W.Roxburgh, *Plants of the Coast of Coromandel* 3: 68. 1820.
(Fig. 8B)

Flower & Fruit: May-August.

Habit & Ecology: Epiphytes. Common; in littoral forests frequently occurring on trunks of *Manilkara littoralis* (Kurz) Dubard, *Terminalia catappa* and *Barringtonia asiatica* (Linnaeus) Kurz.

Distribution: North Andaman (Lamia Bay, Ramnagar), South Andaman.

Global distribution: India, Bangladesh, Nepal, Cambodia, Laos, Myanmar, Thailand, Vietnam.

Exsiccata: N.P. Balakrishnan 163, R. Sumathi 18511, K. Karthigeyan 19516.

Aerides odorata J.de Loureiro, *Flora Cochinchinensis* 2: 525. 1790.

Flower & Fruit: May-July

Habit & Ecology: Epiphytes. Rare; in Rangachang hill forests.

Distribution: Andaman & Nicobar Islands.

Global distribution: China, India, Bangaldesh, Nepal, Cambodia, Laos, Myanmar, Thailand, Vietnam, Indonesia, Malaysia, Philippines, Sulawesi.

Exsiccata: King's coll. 4936, N. Bhargava 5905.

4. *Agrostophyllum* C.Blume

Agrostophyllum planicaule (N.Wallich ex J.Lindley) H.G.Reichenbach in W.G.Walpers, *Annales Botanices Systematicae* 6: 909. 1864. *Eria planicaulis* N.Wallich ex J.Lindley, *Edwards's Botanical Register* 26(Misc.): 8. 1840. (Fig. 8C)

Flower & Fruit: August-October.

Habit & Ecology: Epiphytes. Common; in inland evergreen forests from sea level to 350 m.

Distribution: North Andaman, South Andaman (Mathew, 1998).

Global distribution: China, India, Bangladesh, Nepal, Cambodia, Laos, Myanmar, Thailand, Vietnam, Malaysia.

Exsiccata: N.P. Balakrishnan & N. Bhargava 3477, D.K. Hore 9114, R. Sumathi 17378, K. Karthigeyan 21384 & 21420.

5. *Anoectochilus* C. Blume

Anoectochilus narasimhanii R. Sumathi, J. Jayanthi, K. Karthigeyan & P.V. Sreekumar in *Blumea* 48: 285. 2003. (Fig. 8D)

Flower & Fruit: August-November.

Habit & Ecology: Terrestrials. Rare; growing confined to top of Saddle Peak at an altitude of 650 m amidst leaf litter along shady places.

Distribution: North Andaman (Saddle Peak) (Sumathi *et al.*, 2003). **Endemic.**

Exsiccata: R. Sumathi 17368 & 18536.

Notes: This extremely rare endemic species is described from the stunted vegetation of Saddle peak national park. So far known only from the type locality.

Anoectochilus nicobaricus N.P. Balakrishnan & P. Chakraborty in *Bulletin of the Botanical Survey of India* 20: 80. 1978 (publ. 1979). (Fig. 8E)

Flower & Fruit: October-December.

Habit & Ecology: Terrestrials. Rare; in inland evergreen forests along streamsides and in densely shaded hill slopes of Mt. Thullier above 500 m and along East-West road.

Distribution: Great Nicobar Island (Balakrishnan & Chakraborty, 1978). **Endemic.**

Exsiccata: P. Chakraborty 3226, N.G. Nair 7147, J. Jayanthi 5829.

6. *Apostasia* C. Blume

Apostasia wallichii R. Brown in N. Wallich, *Plantae Asiaticae Rariores* 1: 75. 1830. (Fig. 8F)

Flower & Fruit: July-September.

Habit & Ecology: Terrestrials. Common; in the shades of stunted evergreen forests at an altitude of 400-700 m.

Distribution: North Andaman (Kalpong & Saddle Peak) (Sumathi *et al.*, 2013).

Global distribution: China, Japan, India, Bangladesh, Nepal, Sri Lanka, Cambodia, Myanmar, Thailand, Vietnam, Indonesia, Malaysia, Moluccas, Philippines, Sulawesi, New Guinea, Australia.

Exsiccata: R. Sumathi 17997 & 18673.

7. *Appendicula* C. Blume

Appendicula nicobarica J. Jayanthi, R. Sumathi & K. Karthigeyan in *Edinburgh Journal of Botany* 68: 321. 2011.

Flower & Fruit: May-June.

Habit & Ecology: Epiphytes. Rare; in inland evergreen hill top forest of Mt. Thullier above 600 m. Found growing on moss covered tree trunks of *Kibara coriacea* (Blume) Hooker f. & Thomson and *Gironniera subaequalis* Planchon.

Distribution: Great Nicobar Island. **Endemic.**

Exsiccata: J. Jayanthi 19343.

Notes: This endemic species was discovered from the hill top vegetation of Mt. Thullier in Great Nicobar Island. So far known only from the type collection.

Appendicula reflexa C. Blume, *Bijdragen tot de flora van Nederlandsch Indië*: 301. 1825. (Fig. 8G)

Flower & Fruit: May-August.

Habit & Ecology: Epiphytes. Common; in inland evergreen forests.

Distribution: Great Nicobar Island (Vasudeva Rao, 1982).

Global distribution: Taiwan, Cambodia, Thailand, Vietnam, Indonesia, Malaysia, Moluccas, Philippines, Sulawesi, New Guinea, Fiji, Bismarck archipelago, Solomon Island, Caroline Island, New Caledonia, Tonga, Vanuatu, Wallis-Futuna Island, Santa-Cruz Island.

Exsiccata: N.P. Balakrishnan 3834 & 6082, J. Jayanthi 18364 & 19334.

8. *Bulbophyllum* Thouars

Bulbophyllum apodum J.D. Hooker, *The Flora of British India* 5: 766. 1890.

Flower & Fruit: May-June.

Habit & Ecology: Epiphytes. Rare; in inland evergreen forests from 100 m to hill top forests.

Distribution: Great Nicobar Island (Karthigeyan et al., 2010a).

Global distribution: China, India, Laos, Myanmar, Thailand, Vietnam, Indonesia, Malaysia, Moluccas, Philippines, Sulawesi, Bismarck archipelago, New Guinea, Solomon Island, Fiji, New Caledonia, Vanuatu, Samoa, Wallis-Futuna Island.

Exsiccata: J. Jayanthi 19338.

Bulbophyllum bakhuizenii C.G.G.J.Steenis in Hamzah & Taha, *The Mountain Flora of Java*: t. 36. 1972.

Flower & Fruit: May-June.

Habit & Ecology: Epiphytes. Rare; found profusely growing on *Knema andamanica* (Warburg) W.J.de Wilde subsp. *nicobarica* at an elevation of more than 600 m.

Distribution: Great Nicobar Island (Karthigeyan *et al.*, 2010a).

Global distribution: India, Indonesia, Malaysia.

Exsiccata: *J. Jayanthi* 19329.

Bulbophyllum clandestinum J.Lindley, *Edwards's Botanical Register* 27: t. 77. 1841. *Bulbophyllum sessile* (C.E.O.Kuntze) J.J.Smith, *Die Orchideen von Java*: 448. 1905. *Phyllorkis sessilis* C.E.O. Kuntze, *Revisio Generum Plantarum* 2: 676. 1891.

Flower & Fruit: March-June.

Habit & Ecology: Epiphytes. Common; in inland evergreen forests, hanging on trees.

Distribution: North Andaman, Great Nicobar Island (Vasudeva Rao, 1986).

Global distribution: Bangladesh, India, Cambodia, Myanmar, Thailand, Vietnam, Indonesia, Malaysia, Moluccas, Philippines, Sulawesi, Bismarck archipelago, New Guinea, Solomon Island, Fiji, Crozet Island, Marianas.

Exsiccata: *R. Sumathi* 19787, *J.Jayanthi* 5830.

Bulbophyllum crassipes J.D.Hooker, *The Flora of British India* 5: 760. 1888. *B. careyanum* (J.D.Hooker) C.P.J.Sprengel var. *crassipes* (J.D.Hooker) U.C. Pradhan, *Indian Orchids: guide to identification & culture* 2: 713. 1979. (Fig. 8H)

Flower & Fruit: November-March.

Habit & Ecology: Epiphytes. Common; in littoral forests, inland evergreen forests and along roadsides growing on *Albizia saman* (Jacquin) Mueller, *Aglaia lawii* (Wight) C.J.Saldanha and *Xylocarpus moluccensis* M.Roemer.

Distribution: North Andaman, South Andaman (Sreekumar *et al.*, 1997b).

Global distribution: China, India, Laos, Myanmar, Thailand, Vietnam, Malaysia.

Exsiccata: *R. Sumathi* 19743, *K.Karthigeyan* 6076.

Bulbophyllum flabellum-veneris (J.G.Koenig) L.V.Averyanov, *Updated Checklist of the Orchids of Vietnam*: 73. 2003. *Epidendrum flabellum-veneris* J.G.Koenig in A.J.Retzius, *Observationes Botanicae* 6: 57. 1791. *Bulbophyllum lepidum* (C.Blume) J.J. Smith, *Die Orchideen von Java*: 471. 1905. *Ephippium lepidum* C.Blume, *Bijdragen tot de flora van Nederlandsch Indië*: 310. 1825. (Fig. 8I)

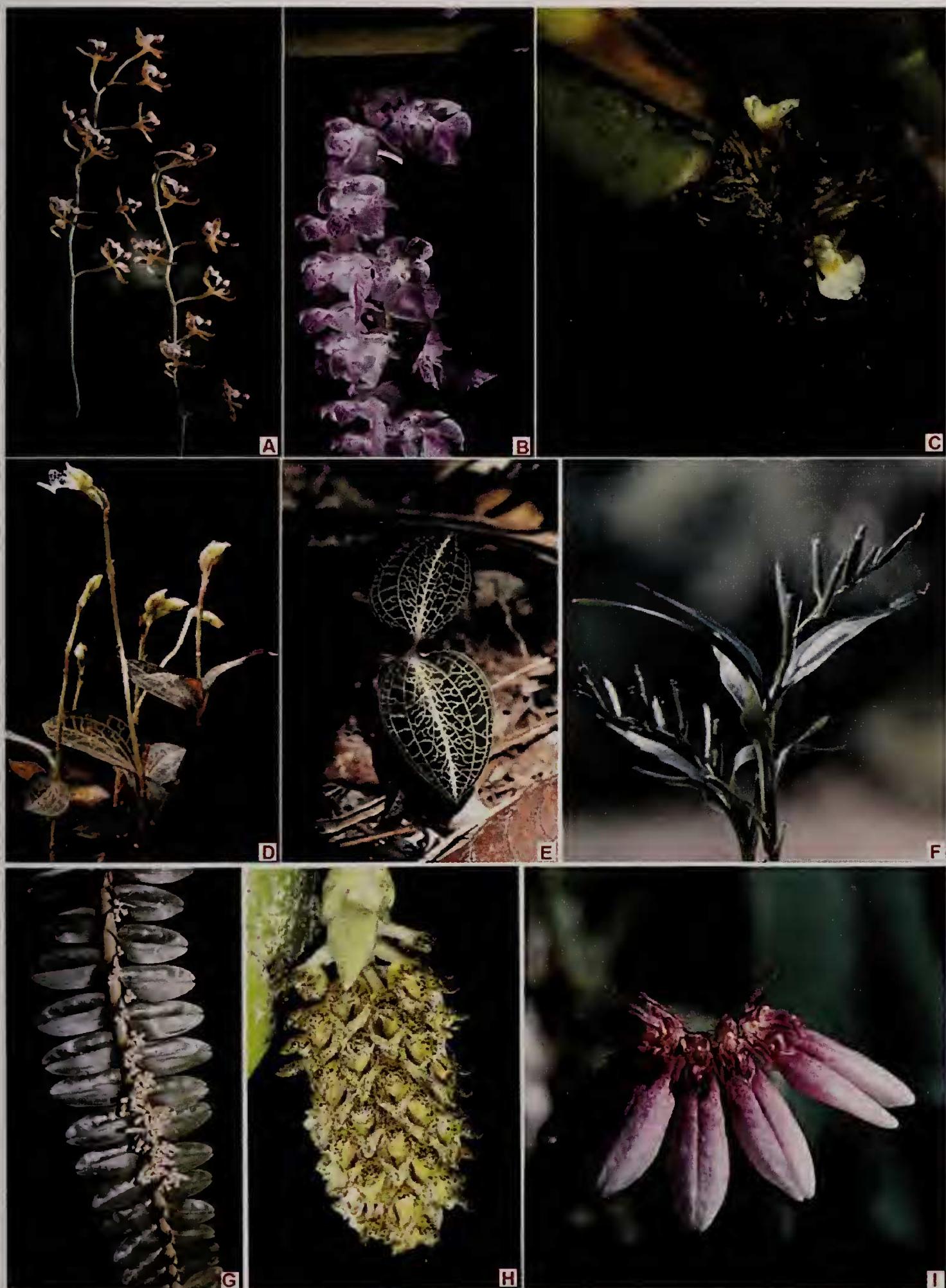


Fig. 8

A. *Acriopsis liliifolia* B. *Aerides multiflora* C. *Agrostophyllum planicaule* D. *Anoectochilus narasimhanii* E. *Anoectochilus nicobaricus* F. *Apostasia wallichii* G. *Appendicula reflexa* H. *Bulbophyllum crassipes* I. *Bulbophyllum flabellum-veneris*

Flower & Fruit: July-January.

Habit & Ecology: Epiphytes. Common; in littoral forests and mangrove swamps growing on *Heritiera littoralis*, *Xylocarpus moluccensis*, *Bruguiera* spp. and *Pandanus* spp. Also found in evergreen forests at higher elevations.

Distribution: North Andaman, South Andaman, Little Andaman (Ghosh, 1993).

Global distribution: Hainan, India, Cambodia, Laos, Myanmar, Thailand, Vietnam, Indonesia, Malaysia, Moluccas.

Exsiccata: N. Bhargava 4188 & 4354, R. Sumathi 18564 & 18634, K. Karthigeyan 19229 & 21321.

Bulbophyllum lilacinum H.N.Ridley, *Journal of the Linnean Society, Botany* 32: 276. 1897.

Flower & Fruit: November-January.

Habit & Ecology: Epiphytes. Rare; in lowland forests.

Distribution: Andaman Island (Balakrishnan & Nair, 1976).

Global distribution: Bangladesh, India, Malaysia, Thailand.

Exsiccata: N.G. Nair 4296 & 4729.

Bulbophyllum longibracteatum G.Seidenfaden, *Dansk Botanisk Arkiv* 33: 140. 1979.

Flower & Fruit: January-March.

Habit & Ecology: Epiphytes. Rare; along the littoral forests, growing on the trunks of *Bruguiera gymnorhiza* (Linnaeus) Lamarck.

Distribution: Great Nicobar Island (Karthigeyan *et al.*, 2010a).

Global distribution: India, Laos, Thailand.

Exsiccata: J. Jayanthi 5831.

Notes: Seidenfaden records the distribution of this species only from Thailand. The present record from Great Nicobar shows its extended distribution from Indochinese to Malesian region.

Bulbophyllum macranthum J.Lindley, *Edwards's Botanical Register* 30: t. 13. 1844.

Flower & Fruit: June-October.

Habit & Ecology: Epiphytes. Common; in inland evergreen forests on the tree trunks along the slopes at lower elevations.

Distribution: Great Nicobar Island (Sanjappa & Chatterjee, 1985).

Global distribution: India, Cambodia, Myanmar, Thailand, Vietnam, Indonesia, Malaysia, Moluccas, Philippines, Sulawesi, New Guinea, Solomon Island.

Exsiccata: J. Jayanthi 5836.

Bulbophyllum maxillare (J.Lindley) H.G.Reichenbach in W.G.Walpers, *Annales Botanices Systematicae* 6: 248. 1861. *Cirrhopetalum maxillare* J.Lindley, *Edwards's Botanical Register* 29: t. 49. 1843. *Cirrhopetalum blumei* J.Lindley, *Genera and Species of Orchidaceous Plants*: 59. 1830, nom. superfl. *Bulbophyllum blumei* (C.E.O.Kuntze) J.J.Smith, *Die Orchideen von Java*: 459. 1905.

Flower & Fruit: November-December.

Habit & Ecology: Epiphytes. Rare; in inland evergreen forests, growing along with *Bulbophyllum clandestinum* and *B. macranthum* at an elevation of about 75 m.

Distribution: Great Nicobar Island (Alappatt, 2013).

Global distribution: India, Indonesia, Malaysia, Philippines, Sulawesi, New Guinea, Solomon Island, Australia.

Bulbophyllum protractum J.D.Hooker, *The Flora of British India* 5: 758. 1890. (Fig. 9A)

Flower & Fruit: August-November.

Habit & Ecology: Epiphytes. Rare; in evergreen forests along the streamsides in Kalpong, behind the rock fill dam area.

Distribution: North Andaman (Mathew, 1998).

Global distribution: India, Bangladesh, Myanmar, Thailand, Vietnam.

Exsiccata: J.W. Helper 244, R. Sumathi 4815.

Note: This species was collected by J.W.Helper and mentioned as Tenessarim & Andaman collection (Kew Herbarium Catalogue, 2014). Hence, the present record confirms its occurrence in the Andaman Islands.

Bulbophyllum restrepia (H.N.Ridley) H.N.Ridley, *Materials for a Flora of the Malayan Peninsula* 1: 78. 1907. *Cirrhopetalum restrepia* H.N.Ridley, *Transactions of the Linnean Society of London, Botany* 3: 365. 1893.

Flower & Fruit: October-December.

Habit & Ecology: Epiphytes. Rare; in inland evergreen forests found growing with *Bulbophyllum clandestinum* on the branches of *Crypteronia paniculata* Blume at an elevation of about 75 m.

Distribution: Great Nicobar Island (Alappatt, 2011).

Global distribution: India, Indonesia, Malaysia, Moluccas, Sulwesi, New Guinea.

Bulbophyllum rufinum H.G.Reichenbach, *Xenia Orchidacea* 3: 45. 1881. (Fig. 9B)

Flower & Fruit: August-January.

Habit & Ecology: Epiphytes. Occasional; in evergreen forests at lower elevations.

Distribution: North Andaman (Saddle Peak & Kalpong), South Andaman (Vasudeva Rao, 1995).

Global distribution: China, India, Cambodia, Laos, Myanmar, Thailand, Vietnam.

Exsiccata: R. Sumathi 4825, K. Karthigeyan 6063.

Bulbophyllum serratotruncatum G.Seidenfaden, *Dansk Botanisk Arkiv* 29: 50. 1973 (publ. 1974). (Fig. 9D)

Flower & Fruit: November-December.

Habit & Ecology: Epiphytes. Rare; in mangrove swamps growing on the trunks of *Heritiera littoralis* and *Bruguiera* spp.

Distribution: South Andaman (Alexandra and Tarmugli Islands) (Karthigeyan *et al.*, 2007).

Global distribution: India, Malaysia.

Exsiccata: K. Karthigeyan 19293.

Notes: Earlier considered as endemic to Malaysia. The collection of this species unveils its extended distribution from Malesian to Indochinese region.

Bulbophyllum tenuifolium (C.Blume) J.Lindley, *Genera and Species of Orchidaceous Plants*: 50. 1830. *Diphyes tenuifolia* C.Blume, *Bijdragen tot de flora van Nederlandsch Indië*: 316. 1825. (Fig. 9C)

Flower & Fruit: August-January.

Habit & Ecology: Epiphytes. Rare; in inland hill top stunted evergreen forests at an elevation of 350-700 m.

Distribution: North Andaman (Kalpong), South Andaman (Rutland). (Kumar & Sreekumar, 2002).

Global distribution: India, Cambodia, Thailand, Indonesia, Malaysia, Philippines, Sulawesi.

Exsiccata: R. Sumathi 4814, K. Karthigeyan 19616.

Notes: This tiny orchid is so far known from only two localities namely Mt. Ford in Rutland Island and Kalpong hill in North Andaman.

9. *Calanthe* R. Brown

Calanthe triplicata (P.R.Willemet) O.Ames, *Philippine Journal of Science*, 2: 326. 1907. *Orchis triplicata* P.R.Willemet, in Usteri, *Annalen der Botanick* 18: 52. 1796.

Flower & Fruit: June-October.

Habit & Ecology: Terrestrials. Rare; in the inland evergreen forests along stream sides.

Distribution: Little Andaman Island (Bhargava, 1978).

Global distribution: China, Japan, Kazan-retto, Nansei-sheto, Ogasawara-sheto, Thailand, India, Cambodia, Laos, Myanmar, Thailand, Vietnam, Indonesia, Malaysia, Moluccas, Philippines, Sulawesi, Bismarck archipelago, New Guinea, Solomon Island, Norfolk Island, New South Wales, Australia, Fiji, New Caledonia, Samoa, Tonga, Vanuata, Wallis-Futuna Island, Society Island, Tubuai Island, Caroline Island, Marianas.

Exsiccata: N. Bhargava 2345, 4124 & 4155.

10. *Ceratostylis* C. Blume

Ceratostylis subulata C. Blume, *Bijdragen tot de flora van Nederlandsch Indië*: 306. 1825.

Flower & Fruit: March-May.

Habit & Ecology: Epiphytes. Common; in mangrove forests and in inland evergreen forests up to 600 m.

Distribution: Great Nicobar Island (Thothathri *et al.*, 1973).

Global distribution: Hainan, India, Cambodia, Laos, Myanmar, Thailand, Vietnam, Indonesia, Malaysia, Moluccas, Philippines, New Guinea, Solomon Islands, Santa Cruz Island, Vanuatu.

Exsiccata: K. Thothathri & N. Banerjee 11419, N.P. Balakrishnan 3033, D.K. Hore 8785, N.G. Nair 7185, B.K. Sinha 16345, J. Jayanthi 19326.

Notes: This species can be easily identified by its densely tufted, terete stems and leaves. Populations with yellow and purple flowers were observed during the field collections.

11. *Chiloschista* J. Lindley

Chiloschista parishii G. Seidenfaden, *Opera Botanica* 95: 176. 1988. (Fig. 9E)

Flower & Fruit: February-March.

Habit & Ecology: Epiphytes. Rare; in moist deciduous and lowland evergreen forests.

Distribution: South Andamans (Lakshminarasimhan & Rao, 1996; Vasudeva Rao, 2008).

Global distribution: India, Nepal, Vietnam, Thailand, Myanmar.

Note: The earlier record of *Chiloschista lunifera* (Reichenbach f.) J.J. Smith in Andaman Islands is erroneous and a misidentification of *C. parishii*.

12. *Cleisostoma* C.Blume

Cleisostoma uraiense (B.Hayata) L.A.Garay & H.R.Sweet, *Orchids of Southern Ryukyu Islands*: 156. 1974. *Sarcanthus uraiensis* B.Hayata, *Icones plantarum formosanarum nec non et contributiones ad floram formosanam*. 8: 130. 1919. (Fig. 9F)

Flower & Fruit: May-August, October-February.

Habit & Ecology: Epiphytes. Common; in littoral forests growing on *Guettarda speciosa* Linnaeus.

Distribution: Katchal Island, Great Nicobar Island (Thothathri *et al.*, 1973, Vasudeva Rao, 1985).

Global distribution: Taiwan, India, Indonesia, Philippines.

Exsiccata: K. Thothathri 11346, N.P. Balakrishnan 2937 & 3869, P.Chakraborty 5320, D.K. Hore 7721 & 8287, J. Jayanthi 18344 & 18391.

Note: This species was misidentified as *Cleisostoma striolatum* (Reichenbach f.) Garay by Thothathri *et al.* (1973). Later, Pandey & Diwakar (2008) again included this species based on Thothathri's report as *C. striolatum*.

Cleisostoma williamsonii (H.G.Reichenbach) L.A.Garay, *Botanical Museum Leaflets* 23: 176. 1972. *Sarcanthus williamsonii* H.G.Reichenbach, *Hamburger Garten- Blumenzeitung* 21: 353. 1865. *Cleisostoma elegans* G.Seidenfaden, *Dansk Botanisk Arkiv* 29(3): 46. 1975.

Flower & Fruit: March-May.

Habit & Ecology: Epiphytes. Rare; in littoral and inland evergreen forests up to an elevation of 400 m.

Distribution: North Andaman (Kalpong, Ramnagar), South Andaman (Alexandra Island) (Diwakar & Sumathi, 2006).

Global distribution: China, India, Cambodia, Laos, Myanmar, Thailand, Vietnam, Indonesia, Malaysia, Moluccas, Philippines, Sulawesi.

Exsiccata: P.G.Diwakar 18883, R. Sumathi 4866, K. Karthigeyan 6100.

Notes: This species is easily confused with *Luisia* in its vegetative state, but can be differentiated by its opposite leaves, shorter habit and long pendulous spikes. Seidenfaden described *Cleisostoma elegans* based on specimens collected by Parish from Myanmar. Further he stated that he studied 2 specimens from Andaman (*Prain* 21 & *E.H.Man* 196). Later it was rediscovered more than a span of 130 years from North Andamans, which shows its rarity.

13. *Coelogyne* J.Lindley

Coelogyne quadratiloba F.Gagnepain, *Bulletin du Muséum d'Histoire Naturelle*, sér. 2, 22: 507. 1950. *Coelogyne thailandica* G.Seidenfaden, *Dansk Botanisk Arkiv* 29(4): 46. 1975.

Flower & Fruit: November-February.

Habit & Ecology: Epiphytes. Rare; in inland evergreen forests at an elevation of 400-600 m.

Distribution: North Andaman (Saddle Peak) (Mathew, 1998).

Global distribution: India, Thailand, Vietnam.

Exsiccata: N.P. Balakrishnan & N.G.Nair 4297, 4995 & 4996.

Coelogyne trinervis J.Lindley, *Genera and Species of Orchidaceous Plants*: 41. 1830. *Pleione trinervis* (J.Lindley) C.E.O.Kuntze, *Revisio Generum Plantarum* 2: 680. 1891.

Flower & Fruit: January-March.

Habit & Ecology: Epiphyte. Common; in stunted evergreen forests at an elevation of 400-700 m.

Distribution: North Andaman, South Andaman (Mathew, 1998).

Global distribution: India, Cambodia, Laos, Myanmar, Thailand, Vietnam, Indonesia, Malaysia, Moluccas.

Exsiccata: R.Sumathi 17336, 17866 & 19723, K.Karthigeyan 6093.

14. *Conchidium* W.Griffith

Conchidium extlectorium (J.Lindley) Y.P.Ng & P.J.Cribb, *Orchid Review* 113: 272. 2005. *Dendrobium extlectorium* J.Lindley, *Edwards's Botanical Register* 21: t. 1756. 1835. *Eria extlectoria* (J.Lindley) D.Oliver, *Botanical Magazine* 97: t. 5910. 1871. *Pinalia extlectoria* (J.Lindley) C.E.O.Kuntze, *Revisio Generum Plantarum* 2: 679. 1891. (Fig. 9G)

Flower & Fruit: September-December.

Habit & Ecology: Epiphytes. Rare; in the inland evergreen forests.

Distribution: North Andaman (Kalpong) (Diwakar *et al.*, 2005a).

Global distribution: Nepal, India, Myanmar.

Exsiccata: R.Sumathi 19789.

Conchidium muscicola (J.Lindley) S.Rauschert, *Feddes Repertorium* 94: 444. 1983. *Dendrobium muscicola* J.Lindley, *Genera and Species of Orchidaceous Plants*: 75. 1830. *Eria muscicola* (J.Lindley) J.Lindley, *Journal of the Linnean Society, Botany* 3: 47. 1858. *Pinalia muscicola* (J.Lindley) C.E.O.Kuntze, *Revisio Generum Plantarum* 2: 679. 1891. (Fig. 9K)

Flower & Fruit: July–February.

Habit & Ecology: Epiphytes or lithophytes. Rare; in stunted hill top evergreen forests at an elevation of 500–700 m.

Distribution: North Andaman (Kalpong, Saddle Peak) (Rao & Srivastava, 1993).

Global distribution: China, India, Nepal, Laos, Myanmar, Thailand, Vietnam.

Exsiccata: R.K. Premanath 9227, R. Sumathi 17899.

Notes: The species is often confused with *Porpax* spp. in vegetative state but can be easily differentiated by its netted pseudobulbs.

15. *Corymborkis* Thouars

Corymborkis veratrifolia (C.G.C.Reinwardt) C.Blume, Collection des Orchidées: 125. 1859. *Hysteria veratrifolia* C.G.C.Reinwardt, Sylloge Plantarum Novarum 2: 5. 1825. *Corymbis veratrifolia* (C.G.C.Reinwardt) H.G.Reichenbach, Flora 48: 184. 1865. (Fig. 9H)

Flower & Fruit: June–September.

Habit & Ecology: Terrestrials. Common; in inland evergreen forests along streamsides as well as in interior littoral forests.

Distribution: North Andaman, Little Andaman, Great Nicobar Island (Thothathri *et al.*, 1973).

Global distribution: China, Taiwan, Bangladesh, India, Srilanka, Cambodia, Laos, Myanmar, Thailand, Vietnam, Indonesia, Malaysia, Moluccas, Philippines, Sulawesi, Christmas Island, Bismarck archipelago, New Guinea, Solomon Island, Australia, Fiji, Samoa, Santa Cruz Island, Tonga, Vanuato, Society Island, Caroline Island, Marianas.

Exsiccata: K.Thothathri & N. Banerjee 11559, N.P.Balakrishnan 3829 & 5797, N. Bhargava 4127, D.K.Hore 8260, R.Sumathi 4821, J.Jayanthi 18350.

16. *Crepidium* C.Blume

Crepidium biauritum (J.Lindley) D.L.Szlachetko, Fragmenta Floristica et Geobotanica Suppl. 3: 124. 1995. *Microstylis biaurita* J.Lindley, Genera and Species of Orchidaceous Plants: 20. 1830. *Microstylis andamanica* G.King & R.Pantling, Journal of the Asiatic Society of Bengal, Pt. 2, Nat. Hist. 66: 582. 1897. *Malaxis andamanica* (G.King & R.Pantling) N.P.Balakrishnan & M.K.Vasudeva Rao, Bulletin of the Botanical Survey of India 21: 177. 1979 (publ. 1981). *Crepidium andamanicum* (G.King & R.Pantling) H.B.Margonska & D.L.Szlachetko, Polish Botanical Journal 46: 43. 2001. (Fig. 9I)

Flower & Fruit: May–August.

Habit & Ecology: Terrestrials. Common; in inland evergreen forests in dense shaded places.

Distribution: Almost throughout Andaman & Nicobar Islands (Balakrishnan & Vasudeva Rao, 1981).

Global distribution: China, India, Bangladesh, Nepal, Laos, Myanmar, Thailand.

Exsiccata: N. Bhargava 3189a-e & 4334, R. Sumathi 18637, J. Jayanthi 19325, 19335 & 19336, K. Karthigeyan 21365.

Notes: Populations with yellow and maroon flowers were found growing in the near vicinity.

17. *Cryptostylis* R.Brown

Cryptostylis arachnites (C.Blume) J.C.Hasskarl in C.Blume, Collection des Orchidées: 133. 1859. *Zosterostylis arachnites* C.Blume, Bijdragen tot de flora van Nederlandsch Indië: 419. 1825.

Flower & Fruit: December-February.

Habit & Ecology: Terrestrials. Rare; in the stunted hill top evergreen forests.

Distribution: North Andaman (Saddle Peak) (Sumathi *et al.*, 2013).

Global distribution: China, Taiwan, India, Srilanka, Cambodia, Laos, Myanmar, Thailand, Vietnam, Indonesia, Malaysia, Moluccas, Philippines, Sulawesi, New Guinea, Solomon Island, Fiji, New Caledonia, Samoa, Vanuato.

Exsiccata: R. Sumathi 4810.

18. *Cymbidium* O.Swartz

Cymbidium aloifolium (C.Linneaus) O.Swartz, Nova Acta Regiae Societatis Scientiarum Upsaliensis 6: 73. 1799. *Epidendrum aloifolium* C.Linnaeus, Species Plantarum: 953. 1753.

Flower & Fruit: May-August.

Habit & Ecology: Epiphytes. Common; in littoral forests, inland forests and along roadsides on the trunks of *Pterocarpus dalbergioides*, *Albizia saman*, *Heritiera littoralis* and *Terminalia procera* Roxburgh.

Distribution: Almost throughout the Andaman group of Islands (Thothathri, 1960).

Global distribution: China, India, Bangladesh, Nepal, Srilanka, Cambodia, Laos, Myanmar, Thailand, Vietnam, Malaysia.

Exsiccata: N.P. Balakrishnan 81, R. Ansari 1433, R. Sumathi 4816, K. Karthigeyan 19515.

Cymbidium bicolor J.Lindley, *Genera and Species of Orchidaceous Plants*: 164. 1833. subsp. *bicolor*

Flower & Fruit: February-April.

Habit & Ecology: Epiphytes. Rare; in inland forests.

Distribution: Andaman & Nicobar Islands. (Vasudeva Rao, 1986).

Global distribution: India, Srilanka, Malaysia, Indonesia, Philippines, Sulawesi.

Cymbidium bicolor subsp. *pubescens* (J.Lindley) Du Puy & P.J.Cribb, *Genus Cymbidium*: 73. 1988. *Cymbidium pubescens* J.Lindley, *Edwards's Botanical Register* 26(Misc.): 75. 1840. *Cymbidium aloifolium* var. *pubescens* (J.Lindley) H.N.Ridley, *Journal of the Straits Branch of the Royal Asiatic Society. Singapore* 59: 196. 1911.

Flower & Fruit: July-September.

Habit & Ecology: Epiphytes. Occasional; in lowland forests near Campbell Bay.

Distribution: Great Nicobar Island (Balakrishnan & Chakraborty, 1978).

Global distribution: India, Malaysia, Indonesia, Philippines, Sulawesi.

Exsiccata: N.P.Balakrishnan 2799.

19. *Dendrobium* O.Swartz

Dendrobium anceps O.Swartz, *Kongl. Vetenskaps Academiens Nya Handlingar* 21: 246. 1800. (Fig. 9J)

Flower & Fruit: January-March.

Habit & Ecology: Epiphytes. Common; in littoral forests, inland evergreen forests and in mangrove swamps growing on the trunks of *Excoecaria agallocha* Linnaeus, *Heritiera littoralis* and *Xylocarpus* spp.

Distribution: Andaman Islands, Great Nicobar Island (Hore & Balakrishnan, 1985).

Global distribution: India, Bangladesh, Nepal, Cambodia, Laos, Myanmar, Thailand, Vietnam.

Exsiccata: N.P. Balakrishnan 5380, 2948, 4012 & 5696, N.G. Nair 7189, D.K. Hore 7219, R. Sumathi 4807, J. Jayanthi 18309, K. Karthigeyan 21418.

Dendrobium aphyllum (W.Roxburgh) C.E.C. Fischer in J.S.Gamble, *Flora of the Presidency of Madras*: 1416. 1928. *Limodorum aphyllum* W.Roxburgh, *Plants of the Coast of Coromandel* 1: 34. 1795. *Dendrobium cucullatum* R.Brown, *Botanical Register* 7: t. 548. 1821. *Dendrobium pierardii* W.Roxburgh ex W.J.Hooker, *Exotic Flora* 1: t. 9. 1822.

Flower & Fruit: February-March.

Habit & Ecology: Epiphytes. Common; in inland forests and along roadsides growing on *Pterocarpus dalbergioides*, *Mangifera indica* Linnaeus and *Albizia saman*.

Distribution: Andaman Islands (Thothathri, 1960).

Global distribution: China, Nepal, India, Laos, Myanmar, Thailand, Vietnam, Malaysia.

Exsiccata: N.P. Balakrishnan 5380.

Dendrobium crumenatum O.Swartz, *Journal für die Botanik* 1799(2): 237. 1800. (Fig. 9L)

Flower & Fruit: February-May.

Habit & Ecology: Epiphytes. Common; in littoral forests and along roadsides growing on *Albizia saman*, *Terminalia catappa* and *Barringtonia asiatica*.

Distribution: Andaman & Nicobar Islands (Thothathri et al., 1973).

Global distribution: Taiwan, India, Srilanka, Cambodia, Laos, Myanmar, Thailand, Vietnam, Indonesia, Malaysia, Moluccas, Philippines, Sulawesi, Christmas Island, New Guinea.

Exsiccata: K. Thothathri & N. Banerjee 11480, N.P. Balakrishnan 2933 & 4028, D.K. Hore 8220, R. Sumathi 4817, J. Jayanthi 18374, K. Karthigeyan 19241.

Notes: One of the most common species found in the Islands. The plant blooms gregariously immediately after rains emitting very pleasant scent.

Dendrobium eriiflorum W.Griffith, *Notulæ ad Plantas Asiaticas* 3: 316. 1851.

Flower & Fruit: August-January.

Habit & Ecology: Epiphytes. Rare; in inland forests.

Distribution: South Andaman (Gopalakabang).

Global distribution: India, Nepal, Myanmar, Thailand, Indonesia.

Exsiccata: Dr.Kings coll. acc no.450648.

Dendrobium formosum W.Roxburgh ex J.Lindley in N.Wallich, *Plantae Asiaticae Rariores* 1: 34. 1830. (Fig. 9M)

Flower & Fruit: April-June.

Habit & Ecology: Epiphytes. Occasional; in littoral forests growing on *Barringtonia asiatica* and in inland evergreen forests from sea level upto hill top forests.

Distribution: Andaman Islands (Vasudeva Rao, 1986).

Global distribution: India, Bangladesh, Nepal, Myanmar, Thailand, Vietnam.

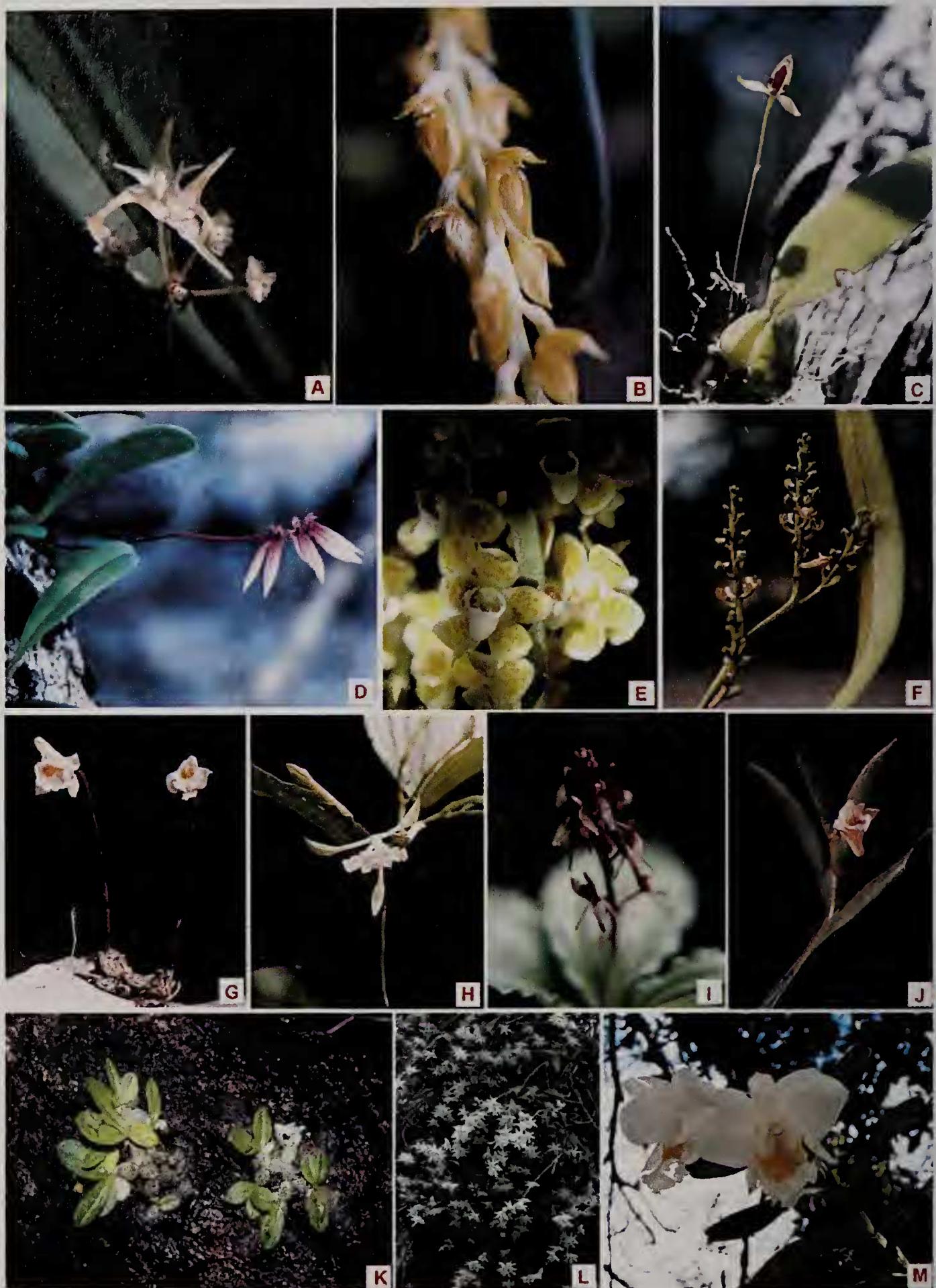


Fig. 9

- A. *Bulbophyllum protractum*
- B. *Bulbophyllum rufinum*
- C. *Bulbophyllum tenuifolium*
- D. *Bulbophyllum serratotruncatum*
- E. *Chiloschista parishii*
- F. *Cleisostoma uraiense*
- G. *Conchidium extintorium*
- H. *Corymborkis veratrifolia*
- I. *Crepidium biauritum*
- J. *Dendrobium anceps*
- K. *Conchidium muscicola*
- L. *Dendrobium crumenatum*
- M. *Dendrobium formosum*

Exsiccata: N.P. Balakrishnan & N.G. Nair 4750, P. Basu 7070, M.K. Vasudeva Rao 8698, R. Sumathi 17318, K. Karthigeyan 19233.

Notes: This species possess the largest flower among all the recorded *Dendobium* spp. in Andaman & Nicobar Islands.

Dendrobium grande J.D.Hooker, *The Flora of British India* 5: 724. 1890.

Flower & Fruit: August-February.

Habit & Ecology: Epiphytes. Rare; in inland evergreen forest.

Distribution: South Andaman Islands (Vasudeva Rao, 1986).

Global distribution: India, Myanmar, Thailand, Indonesia, Malaysia.

Exsiccata: S.Kurz s.n. (K000881653 & K000881654, K!)

Dendrobium gunnarii P.S.N. Rao in *Nordic Journal of Botany* 12: 227. 1992.

Flower & Fruit: November-December.

Habit & Ecology: Epiphytes. Rare; in semi-evergreen and moist deciduous forests, growing in semi-shaded conditions, often along with bamboo and *Euphorbia trigona* P.Miller populations.

Distribution: North Andaman Island (Rao, 1992). **Endemic.**

Exsiccata: P.S.N. Rao 15791.

Dendrobium incurvum J.Lindley, *Journal of the Linnean Society, Botany* 3: 18.

1858. (Fig. 10A)

Flower & Fruit: September-December.

Habit & Ecology: Epiphytes. Occasional; in the shady places of inland evergreen forests.

Distribution: North Andaman (Kalpong) (Rao & Sinha, 1995).

Global distribution: India, Myanmar, Thailand, Vietnam, Malaysia.

Exsiccata: R. Sumathi 4806.

Dendrobium indragiriense F.R.R.Schlechter, *Repertorium Specierum Novarum Regni Vegetabilis* 9: 164. 1911.

Flower & Fruit: May-July.

Habit & Ecology: Epiphytes. Rare; in inland forests.

Distribution: South Andaman, Little Andaman (Balakrishnan & Nair, 1976).

Global distribution: India, Thailand, Indonesia, Malaysia.

Exsiccata: N.G. Nair 3799, N. Bhargava 5118.

Dendrobium macrostachyum J.Lindley, *The Genera - and Species of Orchidaceous Plants*: 78. 1830. *Dendrobium stuartii* F.M.Bailey, *Proceedings of the Royal Society of Queensland* 1: 12. 1884. (Fig. 10B)

Flower & Fruit: March-July.

Habit & Ecology: Epiphytes. Common; in inland evergreen forests at lower elevations and roadsides, especially on the trunks of *Albizia saman* growing along with *Dendrobium aphyllum* and *D. crumenatum*.

Distribution: North Andaman, South Andaman (Mathew, 1999).

Global distribution: Bangladesh, India, Maldives, Nepal, Srilanka, Thailand, Vietnam, Indonesia, Malaysia, Australia.

Exsiccata: R. Sumathi 18648, K. Karthigeyan 6091.

Dendrobium pensile H.N.Ridley, *Journal of the Linnean Society, Botany* 32: 253. 1896.

Flower & Fruit: March-October.

Habit & Ecology: Epiphytes. Rare; in inland evergreen forests and in lowland forests behind littoral zone.

Distribution: Great Nicobar Island (Balakrishnan, 1982).

Global distribution: India, Indonesia, Malaysia.

Exsiccata: N.P. Balakrishnan 6081, D.K. Hore 8235, J. Jayanthi 5832.

Dendrobium plicatile J.Lindley, *Edwards's Botanical Register* 26 (Misc.): 10. 1840. *Flickingeria fimbriata* (C.Blume) A.D. Hawkes, *Orchid Weekly* 2(46): 454. 1961. *Desmotrichum fimbriatum* C.Blume, *Bijdragen tot de flora van Nederlandsch Indië*: 329. 1825. (Fig. 10C)

Flower & Fruit: February-July.

Habit & Ecology: Epiphytes. Common; in littoral forests, gregariously covering the branches of *Barringtonia asiatica*, *Terminalia catappa*, *T. procera* and *Glochidion zeylanicum* (J.Gaertner) A. Jussieu. Also occurs in inland evergreen forests up to elevation of 300m.

Distribution: Andaman & Nicobar Islands (Balakrishnan & Chakraborty, 1978).

Global distribution: China, India, Nepal, Cambodia, Laos, Thailand, Vietnam, Indonesia, Malaysia, Philippines, Sulawesi.

Exsiccata: N.P. Balakrishnan 3904, 5372 & 5789, P. Chakraborty 2517, N.G. Nair 7207, R. Sumathi 4805, J. Jayanthi 18375, K. Karthigeyan 19529.

Dendrobium polyanthum N.Wallich ex J.Lindley, *The Genera and Species of Orchidaceous Plants*: 81. 1830. *Dendrobium cretaceum* J.Lindley, *Edwards's Botanical Register* 33: t. 62. 1847. *Dendrobium primulinum* J.Lindley, *The Gardeners' Chronicle & Agricultural Gazette* 1858: 400. 1858. (Fig. 10D)

Flower & Fruit: February-March.

Habit & Ecology: Epiphytes. Common; in inland forests and along roadsides growing on *Pterocarpus dalbergioides*, *Mangifera indica* and *Albizia saman*.

Distribution: South Andaman.

Global distribution: China, India, Nepal, Laos, Myanmar, Thailand, Vietnam.

Exsiccata: R. Sumathi 19742 & 4807, K. Karthigeyan 6064.

Note: This species is often mistaken for *Dendrobium aphyllum*.

Dendrobium salaccense (C. Blume) J. Lindley, *The Genera and Species of Orchidaceous Plants*: 86. 1830. *Grastidium salaccense* C. Blume, *Bijdragen tot de flora van Nederlandsch Indië*: 333. 1825. (Fig. 10E)

Flower & Fruit: March-July.

Habit & Ecology: Epiphytes. Rare; in littoral forests and in inland evergreen forests found on tall lofty trees reaching about 20 m high.

Distribution: North Andaman, South Andaman.

Global distribution: China, India, Srilanka, Laos, Myanmar, Thailand, Vietnam, Indonesia, Malaysia.

Exsiccata: R. Sumathi 4809, K. Karthigeyan 6099.

Dendrobium secundum (C. Blume) J. Lindley ex N. Wallich, *A Numerical List of Dried Specimens*: n. 1996. 1828. *Pedilonum secundum* C. Blume, *Bijdragen tot de flora van Nederlandsch Indië*: 320. 1825. (Fig. 10F)

Flower & Fruit: January-March.

Habit & Ecology: Epiphytes. Common; in littoral and inland evergreen forests and along roadsides in open sunny places on *Mangifera indica*.

Distribution: North Andaman, South Andaman, Little Andaman (Thothathri, 1960).

Global distribution: India, Cambodia, Laos, Vietnam, Myanmar, Thailand, Indonesia, Malaysia, Philippines, Sulawesi.

Exsiccata: K. Thothathri 9028, N.P. Balakrishnan 37 & 5506, N. Bhargava 5147, R.K. Premanath 8436, R. Sumathi 17865 & 18697, K. Karthigeyan 21460.

Dendrobium shompenii B.K. Sinha & P.S.N. Rao in *Nordic Journal of Botany* 18: 27. 1998. *Aporum shompenii* (B.K. Sinha & P.S.N. Rao) M.A. Clements, *Telopea* 10: 297. 2003. (Fig. 10G)

Flower & Fruit: March-May.

Habit & Ecology: Epiphytes. Rare; in inland forests along densely shaded places.

Distribution: Great Nicobar Island (Sinha *et al.*, 1998). Endemic.

Exsiccata: J. Jayanthi 5844.

Dendrobium tenuicaule J.D.Hooker, *The Flora of British India* 6: 184. 1890.
Ceraia tenuicaulis (J.D.Hooker) M.A.Clements, *Telopea* 10: 294. 2003. (Fig. 10H)
Flower & Fruit: January-May.

Habit & Ecology: Epiphytes. Rare; in inland evergreen forests growing on *Areca catechu* Linnaeus and *Mangifera indica*.

Distribution: Andaman Islands. **Endemic**.

Exsiccata: N. Bhargava 6372, R. Sumathi 18687, K. Karthigeyan 6067.

20. *Dienia* J.Lindley

Dienia ophrydis (J.Koenig) G.Seidenfaden, *Contribution to the orchid flora of Thailand* 13: 18. 1997. *Epidendrum ophrydis* J.Koenig in A.J.Retzius, *Observationes Botanicae* 6: 46. 1791. *Malaxis ophrydis* (J.Koenig) P.Ormerod in G.Seidenfaden, *Descriptiones Epidendrorum* J.G.König: 18. 1995. *Malaxis latifolia* J.E.Smith in A.Rees, *The Cyclopaedia* 22: no. 3. 1812. (Fig. 10I)

Flower & Fruit: May-August.

Habit & Ecology: Terrestrials. Common; in inland evergreen forests in densely shaded places above 500 m.

Distribution: Andaman & Nicobar Islands (Vasudeva Rao, 1986).

Global distribution: China, Taiwan, India, Bangladesh, Nepal. Srilanka, Cambodia, Laos, Myanmar, Thailand, Vietnam, Indonesia, Malaysia, Moluccas, Philippines, Sulawesi, New Guinea, Australia, New Caledonia.

Exsiccata: R. Sumathi 17996, J. Jayanthi 19344, K. Karthigeyan 6096.

21. *Diploprora* J.D.Hooker

Diploprora championii (J.Lindley) J.D.Hooker, *The Flora of British India* 6: 26. 1890. *Cottonia championii* J.Lindley, *Hooker's Journal of Botany and Kew Garden Miscellany* 7: 35. 1855. (Fig. 11A)

Flower & Fruit: July-August.

Habit & Ecology: Epiphytes. Rare; in lowland evergreen to stunted hill top evergreen forests.

Distribution: North Andaman, South Andaman (Vasudeva Rao, 1982).

Global distribution: China, Taiwan, India, Bangladesh, Srilanka, Myanmar, Thailand, Vietnam.

Exsiccata: N.G.Nair 4286 & 6974, R.Sumathi 4818.

Note: Earlier collections of this species in Andaman Islands were misidentified as *Pteroceras berkeleyii* (Reichenbach f.) Holttum. The characteristic lip with bifid apex and concave hypochile is distinct for the species.



Fig. 10

- A. *Dendrobium incurvum* B. *Dendrobium macrostachyum* C. *Dendrobium plicatile*
D. *Dendrobium polyanthum* E. *Dendrobium salaccense* F. *Dendrobium secundum*
G. *Dendrobium shompenii* H. *Dendrobium tenuicaule* I. *Dienia ophrydis*

22. *Eria* J.Lindley

Eria andamanica J.D.Hooker, *The Flora of British India* 5: 801. 1890. *Pinalia andamanica* (J.D.Hooker) C.E.O.Kuntze, *Revisio Generum Plantarum* 2: 679. 1891. (Fig. 11B)

Flower & Fruit: April-June.

Habit & Ecology: Epiphytes. Common; in littoral forests, inland forests and along roadsides growing on *Heritiera littoralis*, *Barringtonia asiatica* and *Pterocarpus dalbergioides*.

Distribution: Andaman Islands (Misra *et al.*, 2010). Endemic.

Exsiccata: R.Sumathi 18685, K.Karthigeyan 6098.

23. *Erythrodes* C.Blume

Erythrodes blumei (J.Lindley) F.R.R.Schlechter in K.M.Schumann & C.A.G.Lauterbach, *Die Flora der Deutschen Schutzgebiete in der Südsee*: 87. 1905. *Physurus blumei* J.Lindley, *The Genera and Species of Orchidaceous Plants*: 504. 1840.

Flower & Fruit: May-July.

Habit & Ecology: Terrestrials. Rare; in inland forests in dense shaded places on hilltop of Mt. Thullier.

Distribution: Great Nicobar Island (Jayanthi *et al.*, 2013).

Global distribution: China, Taiwan, India, Bangladesh, Myanmar, Thailand, Vietnam, Indonesia, Malaysia.

Exsiccata: J. Jayanthi 5833.

24. *Erythrorchis* C.Blume

Erythrorchis altissima (C.Blume) C.Blume, *Rumphia* 1: 200. 1837. *Cyrtosia altissima* C.Blume, *Bijdragen tot de flora van Nederlandsch Indië*: 396. 1825. *Galeola altissima* (C.Blume) H.G.Reichenbach, *Xenia Orchidacea* 2: 77. 1865. (Fig. 11C)

Flower & Fruit: February-June.

Habit & Ecology: Mycoheterotrophic climbers. Rare; in inland forests climbing on *Artocarpus chama* Buchanan-Hamilton at an elevation of 400 m.

Distribution: Great Nicobar Island (Jayanthi *et al.*, 2006).

Global distribution: China, Japan, Taiwan, India, Cambodia, Laos, Myanmar, Thailand, Vietnam, Indonesia, Malaysia, Philippines.

Exsiccata: J.Jayanthi 18383 & 19387.

Notes: This species is one of the largest mycoheterotrophic climbers of the plant kingdom. Though widely distributed in Indochinese and Malesian region, it grows at only one place on Mt. Thullier, Great Nicobar.

25. *Eulophia* R. Brown

***Eulophia andamanensis* H.G.Reichenbach, Flora 55: 276. 1872. (Fig. 11D)**

Flower & Fruit: August-March.

Habit & Ecology: Terrestrial herbs. Rare; in inland forests, coastal forests on slopes facing sea.

Distribution: South Andaman, Little Andaman (Thothathri, 1960).

Global distribution: India, Cambodia, Laos, Myanmar, Thailand, Vietnam, Malaysia, Indonesia.

Exsiccata: N. Bhargava 3488, 4386 & 4748, R.K. Premanath 8408 & 8428, K. Karthigeyan 19214.

***Eulophia dabia* (D.Don) B.P.G.Hochreutiner, Bulletin of the New York Botanical Garden 6: 270. 1910. *Bletia dabia* D.Don, Prodromus Florae Nepalensis: 30. 1825. *Eulophia ramentacea* (W.Roxburgh) J.Lindley, The Genera and Species of Orchidaceous Plants: 185. 1833.**

Flower & Fruit: January-March.

Habit & Ecology: Terrestrials. Rare; in inland forest floors.

Distribution: Little Andaman (Ghosh, 1993).

Global distribution: Turkmenistan, Tadzhikistan, Uzbekistan, Afghanistan, China, Bangladesh, India, Nepal, Pakistan, Myanmar.

Exsiccata: J.L. Ellis & Ramamoorthy 18850.

***Eulophia graminea* J.Lindley, The Genera and Species of Orchidaceous Plants: 182. 1833. (Fig. 11E)**

Flower & Fruit: March-May.

Habit & Ecology: Terrestrial. Rare; in inland forests on the hill slopes of Mt. Ford.

Distribution: South Andaman (Rutland Island) and Nicobar Island (Kamorta) (Hooker, 1894; Vasudeva Rao, 1986).

Global distribution: China, Taiwan, India, Bangladesh, Nepal, Pakistan, Srilanka, Cambodia, Laos, Myanmar, Thailand, Vietnam, Malaysia, Indonesia, Philippines.

Exsiccata: M.K.Vasudeva Rao 8658, K.Karthigeyan 6081.

***Eulophia nicobarica* N.P.Balakrishnan & N.G.Nair, Bulletin of the Botanical Survey of India 15: 271. 1973 (publ.1976).**

Flower & Fruit: June-July.

Habit & Ecology: Terrestrials. Rare; in moist shaded places with sandy loam and clay.

Distribution: Car Nicobar Island (near Passa) (Balakrishnan & Nair, 1973).
Endemic.

Exsiccata: N.G.Nair 1647 B – F.

Eulophia spectabilis (Dennstedt) C.R.Suresh in D.H.Nicolson, C.R.Suresh & K.S.Manilal, *An Interpretation of Van Rheede's Hortus Malabaricus*: 300. 1988. *Wolfia spectabilis* Dennstedt, *Schlüssel Hortus indicus malabaricus*: 38. 1818. *Eulophia nuda* J.Lindley, *The Genera and Species of Orchidaceous Plants* 180. 1833.

Flower & Fruit: December-April.

Habit & Ecology: Terrestrials. Rare; in inland forests and along disturbed forest edges.

Distribution: South Andaman, Little Andaman (Ghosh, 1993).

Global distribution: China, India, Bangladesh, Nepal, Srilanka, Cambodia, Laos, Myanmar, Thailand, Vietnam, Indonesia, Malaysia, Moluccas, Philippines, Sulawesi, New Guinea, Solomon Island, Fiji, Vanuato, Caroline Island, Tonga, Marianas.

Exsiccata: N.G. Nair 6936, M.K.Vasudeva Rao 8697, N. Bhargava 4142 & 4145, K. Karthigeyan 21320.

Eulophia zollingeri (H.G.Reichenbach) J.J.Smith, *Die Orchideen von Java Band vi der Flora von Buitenzorg. Leiden*: 228. 1905. *Cyrtopera zollingeri* H.G.Reichenbach, *Bonplandia* (Hannover) 5: 38. 1857. (Fig. 11F)

Flower & Fruit: May-July.

Habit & Ecology: Terrestrials, saprophytic. Rare; in the shaded places of inland evergreen forests, often forming colonies amidst leaf litter.

Distribution: North Andaman (Kalpong) (Diwakar & Pandey, 2005).

Global distribution: China, Japan, Taiwan, India, Srilanka, Thailand, Vietnam, Indonesia, Malaysia, Moluccas, Philippines, Sulawesi.

Exsiccata: R.Sumathi 18686.

26. *Gastrochilus* D. Don

Gastrochilus calceolaris (F.Buchanan-Hamilton ex J.E.Smith) D.Don, *Prodromus Florae Nepalensis*: 32. 1825. *Aerides calceolaris* F.Buchanan-Hamilton ex Sm. in A.Rees, *The Cyclopaedia* 39(1): no. 11. 1818. (Fig. 11G)
Flower & Fruit: September-December.

Habit & Ecology: Epiphytes. Rare; in inland evergreen forests growing on moist tree trunks.

Distribution: Andaman Islands (Vasudeva Rao, 1986).

Global distribution: China, Nepal, India, Bangladesh, Myanmar, Vietnam, Malaysia, Indonesia, Philippines.

Exsiccata: N.P.Balakrishnan 5181, M.K.Vasudeva Rao 8989, R.Sumathi 17329 & 18699, K.Karthigeyan 6068.

27. *Geodorum* G.Jackson

Geodorum densiflorum (J.B.A.P.de Lamarck) F.R.R.Schlechter, *Repertorium Specierum Novarum Regni Vegetabilis*, Beihefte 4: 259. 1919. *Limodorum densiflorum* J.B.A.P.de Lamarck, *Encyclopédie Méthodique, Botanique* 3: 516. 1792. (Fig. 11H)

Flower & Fruit: March-May.

Habit & Ecology: Terrestrials. Common; in inland and littoral forests and along disturbed forest edges.

Distribution: Andaman Islands (Vasudeva Rao, 1986).

Global distribution: China, Nansei-shoto, Ogasawara-shoto, Taiwan, India, Bangladesh, Nepal, Srilanka, Cambodia, Laos, Myanmar, Thailand, Vietnam, Indonesia, Malaysia, Moluccas, Philippines, Sulawesi, Bismarck archipelago, New Guinea, Solomon Island, Australia, Fiji, Niue, New Caledonia, Samoa, Tonga, Vanuato, Caroline Island, Marianas.

Exsiccata: N.P. Balakrishnan 1671, R. Sumathi 18623, K. Karthigeyan 19643 & 21386.

28. *Goodyera* R.Brown

Goodyera procera (J.B.Ker Gawler) W.J.Hooker, *Exotic Flora* 1: t. 39. 1823.

Neottia procera J.B.Ker Gawler, *Botanical Register* 8: t. 639. 1822.

Flower & Fruit: May-August.

Habit & Ecology: Terrestrials. Rare; in inland evergreen forests along streamsides in dense shady places.

Distribution: Great Nicobar Island (Hore & Balakrishnan, 1985).

Global distribution: China, Japan, India, Bangladesh, Nepal, Srilanka, Taiwan, Cambodia, Laos, Myanmar, Thailand, Vietnam, Indonesia, Malaysia, Philippines.

Exsiccata: D.K. Hore 7592.

29. *Grosourdya* H.G. Reichenbach

Grosourdya appendiculata (C.Blume) H.G. Reichenbach, *Xenia Orchidacea* 2: 123. 1868. *Dendrocolla appendiculata* C.Blume, *Bijdragen tot de flora van Nederlandsch Indië*: 289. 1825. *Sarcochilus hirtulus* J.D.Hooker, *The Flora of British India* 6: 39. 1890. *Thrixspermum appendiculatum* (C.Blume)

C.E.O.Kuntze, *Revisio Generum Plantarum* 2: 682. 1891. *Sarcochilus appendiculatus* (C.Blume) J.J.Smith, *Die Orchideen von Java*: 564. 1905. *Pteroceras appendiculatum* (C.Blume) R.E.Holttum, *Kew Bulletin* 14: 269. 1960. Flower & Fruit: June-September, November-March.

Habit & Ecology: Epiphytes. Rare; in littoral forests along edges of mangrove creeks.

Distribution: Middle Andaman, South Andaman (Rutland Island), Little Andaman (Bhargava & Balakrishnan, 1978).

Global distribution: China, India, Myanmar, Thailand, Vietnam, Indonesia, Malaysia, Moluccas, Philippines, Sulawesi.

Exsiccata: Dr.Prains collector acc.no.465099, N. Bhargava 4190, 6308, & 6588, K. Karthigeyan 6082.

Grosourdya muscosa (R.A.Rolfe) L.A.Garay, *Botanical Museum Leaflets* 23: 181. 1972. *Sarcochilus muscosus* R.A.Rolfe, *Bulletin of Miscellaneous Information Kew* 1893: 7. 1893. (Fig. 11I)

Flower & Fruit: August-December.

Habit & Ecology: Epiphytes. Rare; in inland evergreen forests along streamsides.

Distribution: Andaman Islands (Mathew, 1998).

Global distribution: India, Thailand, Malaysia.

Exsiccata: E.H.Man s.n. (K000891319), K.Karthigeyan 6097, R. Sumathi 4820.

30. *Habenaria* C.L.Willdenow

Habenaria andamanica J.D.Hooker, *The Flora of British India* 6: 134. 1890. (Fig. 11J)

Flower & Fruit: August-October.

Habit & Ecology: Terrestrials. Rare; in deep shady and moist places of evergreen forests along the hill slopes.

Distribution: South Andaman & Middle Andaman (Mehrotra & Srivastava, 1985). **Endemic**.

Exsiccata: Dr. Kings coll. s.n., A. Mehrotra 132, M.K. Vasudeva Rao 8654, K. Karthigeyan 6069.

Habenaria nicobarica C.Murugan, J.Alappatt, S.Prabhu & W.Arisdason, *Bangladesh Journal of Plant Taxonomy* 21(1): 77. 2014.

Flower & Fruit: October-April.

Habit & Ecology: Terrestrials. Rare; in inland evergreen forests.

Distribution: Little Nicobar & Great Nicobar Islands. **Endemic**.

Habenaria osmastonii K.Karthigeyan, V.Maina, R.Sumathi, J.Jayanthi & J.S.Jalal, *Phytotaxa* 166(2): 151. 2014.

Flower & Fruit: July-October.

Habit & Ecology: Terrestrials. Rare; in inland evergreen forests.

Distribution: North Andaman (Kalpong), South Andaman (Rutland Island) (Karthigeyan *et al.*, 2014). **Endemic**.

Exsiccata: *B.B. Osmaston* 21, *K. Karthigeyan* 6081, *V. Maina* 17265.

Notes: An extremely rare species known only from higher elevations at Mt. Ford and Kalpong hill.

31. *Hetaeria* C.Blume

Hetaeria obliqua C.Blume, *Collection des Orchidées*: 104. 1859.

Flower & Fruit: March-April.

Habit & Ecology: Terrestrials. Rare; in the lowland swamp forests between Lakshman beach to Laful.

Distribution: Great Nicobar Island (Thothathri *et al.*, 1973).

Global distribution: Hainan, India, Thailand, Indonesia, Malaysia.

Exsiccata: *K. Thothathri & N. Banerjee* 11416 & 11566, *J. Jayanthi* 5838.

Hetaeria oblongifolia C.Blume, *Bijdragen tot de flora van Nederlandsch Indië*: 410. 1825.

Flower & Fruit: February-May.

Habit & Ecology: Terrestrials. Rare; in the lowland swampy areas and along streamsides.

Distribution: Katchal Island and Great Nicobar Island (Balakrishnan & Chakraborty, 1978).

Global distribution: Nansei-shoto, Taiwan, India, Bangladesh, Myanmar, Thailand, Vietnam, Indonesia, Malaysia, Moluccas, Philippines, Sulawesi, New Guinea, Solomon Island, Australia, Fiji, Niue, New Caledonia, Samoa, Vanuato, Tonga, Santa-cruz Island, Caroline Island.

Exsiccata: *P. Chakraborty* 5572, *D.K. Hore* 7782.

32. *Liparis* L.C.M.Richard

Liparis atrosanguinea H.N.Ridley, *Journal of the Asiatic Society, Science* 39: 71. 1870. (Fig. 11K)

Flower & Fruit: May-July.

Habit & Ecology: Terrestrials. Rare; in inland evergreen forest.

Distribution: North Andaman (Kalpong), Great Nicobar Island (Mt.Thullier) (Sumathi *et al.*, 2011).



Fig. 11

- A. *Diploprora championii* B. *Eria andamanica* C. *Erythrorchis altissima* D. *Eulophia andamanensis* E. *Eulophia graminea* F. *Eulophia zollingeri* G. *Gastrochilus calceolaris* H. *Geodorum densiflorum* I. *Grosourdya muscosa* J. *Habenaria andamanica* K. *Liparis atrosanguinea*

Global distribution: India, Thailand, Vietnam, Indonesia, Malaysia.

Exsiccata: *R. Sumathi* 18643, *J. Jayanthi* 19335.

Notes: The species is also seen growing on crevices of trees, in inland evergreen forests.

Liparis elegans J.Lindley, *The Genera and Species of Orchidaceous Plants*: 30. 1830. (Fig. 12A)

Flower & Fruit: May-June.

Habit & Ecology: Epiphytes. Rare; in inland evergreen forests on moss covered tree trunks in hilltop forests.

Distribution: Great Nicobar Island (*Jayanthi et al.*, 2006b).

Global distribution: India, Thailand, Indonesia, Malaysia, Philippines, New Guinea, Solomon Island, Fiji, New Caledonia, Samoa, Tonga, Vanuato.

Exsiccata: *J.Jayanthi* 5834.

Notes: Earlier known from Peninsular Malaysia, Borneo, Philippines and Sumatra. The species is represented for India only from Great Nicobar Island.

33. *Luisia* C.Gaudichaud-Beaupré

Luisia balakrishnanii S.Misra in *Nelumbo* 52: 152. 2010.

Flower & Fruit: August-October.

Habit & Ecology: Epiphytes. Rare; in evergreen forests at sea level.

Distribution: South Andaman. **Endemic**.

Exsiccata: *S.Misra* 2498.

Luisia brachystachys (J.Lindley) C.Blume, *Rumphia* 4: 50. 1849. *Mesoclastes brachystachys* J.Lindley, *The Genera and Species of Orchidaceous Plants*: 44. 1830.

Flower & Fruit: March-July.

Habit & Ecology: Epiphytes. Rare; in inland forests around Portblair.

Distribution: South Andaman Island.

Global distribution: China, India, Bangladesh, Nepal, Laos, Myanmar, Thailand, Vietnam.

Exsiccata: *E.H.Mann*, acc.no.456757.

Note: There is only one specimen available at CAL.

Luisia recurva G.Seidenfaden, *Dansk Botanisk Arkiv* 27(4): 31. 1971.

Flower & Fruit: August-September.

Habit & Ecology: Epiphytes. Rare; in inland evergreen forests.

Distribution: South Andaman (North Bay).

Global distribution: India, Thailand.

Exsiccata: Kings collector, s.n.

Note: There is only one specimen available at CAL.

Luisia tristis (J.G.A.Forster) J.D.Hooker, *The Flora of British India* 6: 25. 1890.

Epidendrum triste J.G.A.Forster, *Florulae Insularum Australium Prodromus*: 60. 1786. *Luisia teretifolia* C. Gaudichaud-Beaupré, *Voyage autour du monde, entrepris par ordre du roi, exécuté sur les corvettes de S. M. l'Uranie et la Physicienne, pendant les années 1817, 1818, 1819 et 1820 Botanique* 426. 1829.

Luisia zeylanica J.Lindley, *Folia Orchidacea* 4: 3. 1853. *L. platyglossa* H.G.Reichenbach in W.G.Walpers, *Annales Botanices Systematicae* 6: 622. 1863. (Fig. 12B)

Flower & Fruit: February-August.

Habit & Ecology: Epiphytes. Common; in inland evergreen and in littoral forests growing on *Barringtonia asiatica*.

Distribution: Andaman Islands, Great Nicobar Island (Hore & Balakrishnan, 1985).

Global distribution: India, Bangladesh, Nepal, Srilanka, Myanmar, Thailand, Vietnam, Indonesia, Malaysia, Moluccas, Philippines, New Guinea, Solomon Island, Australia, Fiji, New Caledonia, Samoa, Vanuato, Marianas.

Exsiccata: N.P. Balakrishnan 4031, R.P.Dwivedi 8507, R. Sumathi 4813, J.Jayanthi 19926, K. Karthigeyan 6084.

Luisia zollingeri H.G.Reichenbach in W.G.Walpers, *Annales Botanices Systematicae* 6: 622. 1863. (Fig. 12C)

Flower & Fruit: February-May.

Habit & Ecology: Epiphytes. Common; in inland forests, edges of disturbed forests and also along roadsides.

Distribution: South Andaman, Katchal Island (Vasudeva Rao, 1986).

Global distribution: China, India, Cambodia, Thailand, Vietnam, Indonesia, Malaysia.

Exsiccata: P. Chakraborty 5288 (CAL), K.Karthigeyan 21429.

34. *Macropodanthus* L.O. Williams

Macropodanthus alatus (R.E.Holttum) G.Seidenfaden & L.A.Garay, *Opera Botanica* 95: 261. 1988. *Sarcochilus alatus* R.E.Holttum, *The Garden Bulletin Singapore* 14: 5. 1953. *Pteroceras alatum* (R.E.Holttum) R.E.Holttum, *Kew Bulletin* 14: 269. 1960.

Flower & Fruit: March-May.

Habit & Ecology: Epiphytes. Rare; in inland evergreen forests.

Distribution: Katchal Island, Little Nicobar Island (Balakrishnan & Chakraborty, 1978; Sahni & Naithani, 1979).

Global distribution: India, Cambodia, Thailand, Vietnam, Malaysia.

Exsiccata: P. Chakraborty 2527.

Macropodanthus berkeleyi (H.G.Reichenbach) G.Seidenfaden & L.A.Garay, *Opera Botanica* 95: 261. 1988. *Thrixspermum berkeleyi* H.G.Reichenbach, *The Gardeners' Chronicle & Agricultural Gazette* n.s., 17: 557. 1882. *Sarcochilus berkeleyi* (H.G.Reichenbach) J.D.Hooker, *The Flora of British India* 6: 34. 1890. *Pteroceras berkeleyi* (H.G.Reichenbach) R.E.Holtum, *Kew Bulletin* 14: 269. 1960.

Flower & Fruit: May-September.

Habit & Ecology: Epiphytes. Rare; in inland evergreen forests near Laful.

Distribution: South Andaman, Great Nicobar Island (Hore & Balakrishnan, 1985). **Endemic**.

Exsiccata: E.S. Berkeley, s.n. (K000891408), N.G.Nair 4286, D.K.Hore 8722.

35. *Malleola* J.J.Smith & F.R.R.Schlechter ex Schlechter

Malleola andamanica N.P. Balakrishnan & N. Bhargava, *Proceedings of the Indian Academy of Sciences*, B 88: 317. 1979. (Fig. 12D)

Flower & Fruit: June-November.

Habit & Ecology: Epiphytes. Rare; along the stream sides in the inland forests.

Distribution: Andaman Islands (Balakrishnan & Bhargava, 1979). **Endemic**.

Exsiccata: R. Sumathi 4803, K. Karthigeyan 6070.

36. *Nephelaphyllum* C.Blume

Nephelaphyllum pulchrum C.Blume, *Bijdragen tot de flora van Nederlandsch Indië*: 373. 1825. (Fig. 12E)

Flower & Fruit: June-January.

Habit & Ecology: Terrestrials. Rare; in the evergreen forest slopes near the water catchment areas.

Distribution: North Andaman (Kalpong) (Sumathi et al., 2013).

Global distribution: China, India, Cambodia, Myanmar, Thailand, Vietnam, Indonesia, Malaysia, Philippines.

Exsiccata: R.Sumathi 18650.

37. *Nervilia* P.Commerson ex C.Gaudichaud-Beaupré

Nervilia concolor (C.Blume) F.R.R.Schlechter, *Botanische Jahrbücher für Systematik, Pflanzengeschichte und Pflanzengeographie* 45: 404. 1911. *Cordyla concolor* C.Blume, *Bijdragen tot de flora van Nederlandsch Indië*: 416. 1825. *Pogonia concolor* (C.Blume) C.Blume, *Museum Botanicum* 1: 32. 1849. *Nervilia aragoana* C. Gaudichaud-Beaupré, *Voyage autour du monde, entrepris par ordre du roi, exécuté sur les corvettes de S. M. l'Uranie et la Physicienne, pendant les années 1817, 1818, 1819 et 1820 Botanique*: 422. 1829.

Flower & Fruit: May-November.

Habit & Ecology: Terrestrials. Common; along the littoral forests forming large patches.

Distribution: North Andaman, South Andaman, Little Andaman (Sreekumar & Ray, 1996).

Global distribution: China, India, Taiwan, Bangladesh, Nepal, Pakistan, Laos, Myanmar, Thailand, Vietnam, Indonesia, Malaysia, Moluccas, Philippines, Sulawesi, New Guinea, Solomon Island, Australia, Fiji, New Caledonia, Samoa, Tonga, Vanuato, Caroline Island, Marianas.

Exsiccata: N.P. Balakrishnan 4086, N. Bhargava 2362, R.Sumathi 4819, K.Karthigeyan 6078.

Nervilia plicata (Andrews) F.R.R.Schlechter, *Botanische Jahrbücher für Systematik, Pflanzengeschichte und Pflanzengeographie* 45: 403. 1911. *Arethusa plicata* H.C.Andrews, *Botanist's Repository, for new, and rare plants* 5: 321. 1803. *Pogonia plicata* (H.C.Andrews) J.Lindley, *The Genera and Species of Orchidaceous Plants*: 415. 1840.

Flower & Fruit: March-July.

Habit & Ecology: Terrestrials. Rare; in inland evergreen forests.

Distribution: North Andaman (Kalpong) (Sreekumar & Ray, 1996).

Global distribution: China, India, Nepal, Pakistan, Bangladesh, Taiwan, Laos, Myanmar, Thailand, Vietnam, Indonesia, Malaysia, Philippines, New Guinea, Australia.

Exsiccata: R.Sumathi 4802.

Nervilia punctata (C.Blume) T.Makino, *Botanical Magazine (Tokyo)* 16: 199. 1902. *Pogonia punctata* C.Blume, *Museum Botanicum* 1: 32. 1849. *Aplostellis punctata* (C.Blume) H.N.Ridley, *Flora Malay Peninsula* 4: 204 1924.

Flower & Fruit: March-June.

Habit & Ecology: Terrestrials. Rare; in inland evergreen forests along streamsides and hill slopes.

Distribution: North Andaman, Katchal Island, Great Nicobar Island (Balakrishnan & Chakraborty, 1978; Sreekumar & Ray, 1996).

Global distribution: India, Thailand, Vietnam, Indonesia

Exsiccata: N.P. Balakrishnan 5709 & 5817, P. Chakraborty 5601, R. Sumathi 4812, J. Jayanthi 18333.

38. *Oberonia* J.Lindley

Oberonia ensiformis (J.E.Smith) J.Lindley, *Folia Orchidacea* 8: 4. 1859. *Malaxis ensiformis* J.E.Smith in A.Rees, *The Cyclopaedia* 22: no. 14. 1812. *Oberonia iridifolia* J.Lindley, *The Genera and Species of Orchidaceous Plants*: 15. 1830, *nom. superfl.*

Flower & Fruit: August-December.

Habit & Ecology: Epiphytes. Common; in inland evergreen forests.

Distribution: North Andaman, South Andaman & Great Nicobar Island.

Global distribution: China, India, Nepal, Laos, Vietnam, Thailand, Myanmar.

Exsiccata: R. Sumathi 4804, J. Jayanthi 19425, K. Karthigeyan 19235.

Oberonia griffithiana J.Lindley, *Sertum Orchidaceum*: t. 8 B. 1838.

Flower & Fruit: November-December.

Habit & Ecology: Epiphytes. Rare; found growing on densely moss covered tree trunks of *Mangifera andamanica* in evergreen forest at an elevation of 30-60 m.

Distribution: Middle Andaman (Prasad & Raviprasad, 2014).

Global distribution: India, Myanmar, Thailand.

Oberonia mucronata (D.Don) P.Ormerod & G.Seidenfaden in G.Seidenfaden, *Contribution to the orchid flora of Thailand* 13: 20. 1997. *Stelis mucronata* D.Don, *Prodromus Florae Nepalensis*: 32. 1825. *Oberonia denticulata* R.Wight, *Icones Plantarum Indiae Orientalis* 5: t. 1625. 1851. *Oberonia iridifolia* var. *brevifolia* J.D.Hooker, *The Flora of British India* 5: 676. 1890. *Oberonia iridifolia* var. *denticulata* (R.Wight) J.D.Hooker, *The Flora of British India* 5: 676. 1890. *Oberonia denticulata* var. *brevifolia* (J.D.Hooker) S.Misra, *Journal of Orchid Society of India* 3: 70. 1989. *Oberonia denticulata* var. *iridifolia* (W.Roxburgh) S.Misra, *Journal of Orchid Society of India* 3: 69. 1989.

Flower & Fruit: October-January.

Habit & Ecology: Epiphytes. Rare; in inland and littoral forests.

Distribution: Andaman Islands (Ray *et al.*, 1998).

Global distribution: China, India, Bangladesh, Nepal, Laos, Myanmar, Thailand, Vietnam, Indonesia, Malaysia, Philippines, Sulawesi.

Exsiccata: King's collector 1619, N.P. Balakrishnan 5492, P. Basu 7315 & 7359.

39. *Pachystoma* C.Blume

Pachystoma pubescens C.Blume, *Bijdragen tot de flora van Nederlandsch Indië*: 376, t. 3, f. 29. 1825. *Pachystoma senile* (J.Lindley) H.G.Reichenbach, *Bonplandia (Hannover)* 3: 251. 1855.

Flower & Fruit: February-July.

Habit & Ecology: Terrestrials. Rare; in littoral forests.

Distribution: Car Nicobar and Kamorta Island (Vasudeva Rao, 1986)

Global distribution: China, Taiwan, India, Bangladesh, Nepal, Cambodia, Laos, Myanmar, Thailand, Vietnam, Indonesia, Malaysia, Moluccas, Philippines, Sulawesi, New Guinea, Australia, New Caledonia.

Exsiccata: Kurz acc.no. 433678, N.G. Nair 3569.

40. *Papilionanthe* F.R.R.Schlechter

Papilionanthe teres (W.Roxburgh) F.R.R.Schlechter, *Orchis. Monatsschrift der Deutschen Gesellschaft für Orchideenkunde* 9: 78. 1915. *Dendrobium teres* W.Roxburgh, *Flora indica* ed. 1832, 3: 485. 1832. (Fig. 12F)

Flower & Fruit: February-June.

Habit & Ecology: Epiphytes. Common; in inland evergreen forests from sea level to 700 m in open edges and along edges of disturbed forests growing on trees such as *Pterocarpus dalbergioides*, *Tectona grandis* Linnaeus f., *Lagerstroemia hypoleuca* Kurz and *Dipterocarpus* spp.

Distribution: North Andaman, South Andaman (Vasudeva Rao, 1986).

Global distribution: China, India, Bangladesh, Nepal, Laos, Myanmar, Thailand, Vietnam, Fiji, Caroline Island.

Exsiccata: N.P.Balakrishnan 5185, R.Sumathi 17818 & 19706, K.Karthigeyan 6072.

41. *Peristylus* C.Blume

Peristylus balakrishnanii K.Karthigeyan, R.Sumathi & J.Jayanthi in *Kew Bulletin* 65: 491. 2010 (publ. 2011).

Flower & Fruit: June-July.

Habit & Ecology: Terrestrials. Rare; along the hill slopes of Mt. Ford above 300 m growing with *Carex indica* Linnaeus, *Crepidium biauritum* and *Oryza meyeriana* (Zollinger & Moritz) Baillon.

Distribution: South Andaman (Rutland Island). (Karthigeyan *et al.*, 2010b)
Endemic.

Exsiccata: K.Karthigeyan 6074.

Notes: This rare species is so far known only from its type locality.

Peristylus monticola (H.N.Ridley) G.Seidenfaden, *Dansk Botanisk Arkiv* 31: 35. 1977. *Habenaria monticola* H.N.Ridley, *Journal of the Linnean Society, Botany* 32: 413. 1896. (Fig. 12G)

Flower & Fruit: September-December.

Habit & Ecology: Terrestrials. Rare; in evergreen forests at an elevation of 400-700 m.

Distribution: North Andaman (Saddle Peak & Kalpong) (Sreekumar *et al.*, 1997).

Global distribution: India, Indonesia, Malaysia, Moluccas, Philippines, Sulawesi, New Guinea.

Exsiccata: *R.Sumathi* 17998, 18537, 18567.

Peristylus parishii H.G.Reichenbach, *Transactions of the Linnean Society of London* 30: 139. 1874. (Fig. 12H)

Flower & Fruit: June-August.

Habit & Ecology: Terrestrials. Common; in inland evergreen forests along hill slopes, streamsides and edges of forests.

Distribution: Andaman Islands (Vasudeva Rao, 1986).

Global distribution: China, India, Nepal, Myanmar, Thailand, Vietnam.

Exsiccata: *N. Bhargava* 4125, *R.Sumathi* 17896 & 18639, *K.Karthigeyan* 19640.

42. *Phalaenopsis* C.Blume

Phalaenopsis deliciosa H.G.Reichenbach, *Bonplandia (Hannover)* 2: 93. 1854.

Kingidium deliosum (H.G.Reichenbach) H.R.Sweet, *American Orchid Society Bulletin* 39: 1095. 1970. (Fig. 12I)

Flower & Fruit: August-November.

Habit & Ecology: Epiphytes. Rare; in dense shady places of inland evergreen forests.

Distribution: Andaman Islands & North Nicobar Islands (Lakshminarasimhan & Ray, 1992, Ray *et al.*, 1996, Sreekumar, 1997).

Global distribution: China, India, Bangladesh, Nepal, Srilanka, Cambodia, Laos, Myanmar, Thailand, Vietnam, Indonesia, Malaysia, Moluccas, Philippines, Sulawesi.

Exsiccata: *P. Lakshminarasimhan* 15199, *P.V.Sreekumar & L.N.Ray* 16473, *R.Sumathi* 4808, *K.Karthigeyan* 6077.

Phalaenopsis tetraspis H.G.Reichenbach, *Xenia Orchidacea* 2: 146. 1870. *P. speciosa* H.G.Reichenbach, *The Gardeners' Chronicle & Agricultural Gazette*, n.s., 15: 562. 1881. *P. speciosa* var. *tetraspis* (H.G.Reichenbach) H.R.Sweet, *American Orchid Society Bulletin* 37: 1092. 1968. (Fig. 13A)



Fig. 12

- A. *Liparis elegans* B. *Luisia tristis* C. *Luisia zollingeri* D. *Malleola andamanica*
E. *Nephelaphyllum pulchrum* F. *Papilionanthe teres* G. *Peristylus monticola* H. *Peristylus parishii* I. *Phalaenopsis deliciosa*

Flower & Fruit: March-August.

Habit & Ecology: Epiphytes. Rare; in inland evergreen forests growing on *Artocarpus chama* over an elevation of 100 m.

Distribution: South Andaman, Katchal, Teressa and Great Nicobar Island (Jayanthi et al., 2003; 2014).

Global distribution: India, Indonesia.

Exsiccata: P.Chakraborty 3212, D.K.Hore 7289 & 7767, R.P.Dwivedi 8526, J.Jayanthi 19380.

Notes: This plant was first described from the Andaman & Nicobar Islands. It was later reported from Sumatra. The flowers show variations with regard to the colour that are both waxy white with magenta transverse bands on sepals and lip or dark magenta throughout with white apex and base. It has a great ornamental value, as the flowers are showy, sweet scented and lasts for more than two weeks.

43. *Pholidota* J.Lindley

Pholidota imbricata J.Lindley in W.J.Hooker, *Exotic Flora* 2: t. 138. 1825.

Flower & Fruit: March-September.

Habit & Ecology: Epiphytes. Common; in inland evergreen forests and also in littoral often growing on *Barringtonia asiatica*, *Pterocarpus dalbergioides*, *Ficus microcarpa* Linnaeus f. and *Heritiera littoralis* forming dense patches.

Distribution: Andaman & Nicobar Islands (Thothathri et al., 1973).

Global distribution: China, India, Bangladesh, Nepal, Srilanka, Cambodia, Laos, Myanmar, Thailand, Vietnam, Indonesia, Malaysia, Moluccas, Philippines, Sulawesi, New Guinea, Solomon Island, Australia, New Caledonia, Santa-cruz Island, Vanuato.

Exsiccata: K.Thothathri & N. Banerjee 11437, N.P.Balakrishnan 3082, N. Bhargava 4326, 5114 & 6540, D.K. Hore 6763 & 7972, G.Chakraborty & G.S.Lakra 12374, J.Jayanthi 19903, K.Karthigeyan 6079.

44. *Phreatia* J.Lindley

Phreatia plantaginifolia (J.G.Koenig) P.Ormerod, *Opera Botanica* 124: 22. 1995. *Epidendrum plantaginifolium* J.G.Koenig in A.J.Retzius, *Observationes Botanicae* 6: 60. 1791. *Phreatia secunda* (C.Blume) J.Lindley, *The Genera and Species of Orchidaceous Plants*: 64. 1830.

Flower & Fruit: March-April.

Habit & Ecology: Epiphytes. Rare; in stunted hill top evergreen forests at 500-700 m.

Distribution: North Andaman (Saddle Peak) (Balakrishnan & Nair, 1976).
Global distribution: India, Thailand, Vietnam, Indonesia, Malaysia, Moluccas, Philippines, Sulawesi.
Exsiccata: N.P.Balakrishnan 5163, R.Sumathi 17337.

45. *Pinalia* F.Buchanan-Hamilton ex D.Don

Pinalia bractescens (J.Lindley) C.E.O.Kuntze, *Revisio Generum Plantarum* 2: 679. 1891. *Eria bractescens* J.Lindley, *Edwards's Botanical Register* 27(Misc.): 18. 1841. *E. bractescens* var. *kurzii* J.D.Hooker, *The Flora of British India* 5: 797. 1890. (Fig. 13B)

Flower & Fruit: February-August.

Habit & Ecology: Epiphytes. Common; in inland forests and littoral forests growing on *Ficus microcarpa* and *Manilkara littoralis* and also along roadside trees.

Distribution: Andaman & Nicobar Islands (Thothathri *et al.*, 1973).

Global distribution: India, Bangladesh, Nepal, Cambodia, Laos, Myanmar, Thailand, Vietnam, Indonesia, Malaysia, Moluccas, Philippines, Sulawesi, New Guinea.

Exsiccata: K. Thothathri & N. Banerjee 11466 & 11312, N.P.Balakrishnan 5493 & 5627, J.Jayanthi 19418, K.Karthigeyan 21412.

46. *Plocoglottis* C.Blume

Plocoglottis javanica C.Blume, *Bijdragen tot de flora van Nederlandsch Indië*: 381. 1825.

Flower & Fruit: May-August.

Habit & Ecology: Terrestrials. Common; in inland evergreen forests along streamsides and hill slopes from mid-elevation to hilltop.

Distribution: Great Nicobar Island (Balakrishnan & Chakraborty, 1978).

Global distribution: India, Thailand, Vietnam, Indonesia, Malaysia.

Exsiccata: N.P. Balakrishnan 3989, D.K. Hore 7743, J. Jayanthi 19365.

47. *Podochilus* C.Blume

Podochilus microphyllus J.Lindley, *The Genera and Species of Orchidaceous Plants*: 234. 1833. (Fig. 13C)

Flower & Fruit: May-July.

Habit & Ecology: Epiphytes. Rare; in inland evergreen forests growing on moss covered tree trunks of *Calophyllum soulattri* Burman f. and *Knema andamanica*.

Distribution: Great Nicobar Island (Balakrishnan & Chakraborty, 1978).
Global distribution: India, Cambodia, Myanmar, Thailand, Vietnam, Indonesia, Malaysia.

Exsiccata: N.P.Balakrishnan 3892, N.G.Nair 7204, J.Jayanthi 19324.

48. *Polystachya* W.J.Hooker

Polystachya concreta (N.J.Jacquin) L.A.Garay & H.R.Sweet, *Orquideologia* 9: 206. 1974. *Epidendrum concretum* N.J.Jacquin, *Enumeratio Systematica Plantarum*: 30. 1760. *Polystachya flavescens* (C.Blume) J.J.Smith, *Die Orchideen von Java* 284. 1905. (Fig. 13D)

Flower & Fruit: August-October.

Habit & Ecology: Epiphytes. Common; in the inland evergreen forests growing on *Calophyllum calaba* Linnaeus var. *bracteatum* (Wight) P.F.Stevens, *Dipterocarpus* spp. and *Mangifera indica*.

Distribution: North Andaman, South Andaman, Katchal Island (Balakrishnan & Chakraborty, 1978).

Global distribution: Africa, China, India, Srilanka, Laos, Thailand, Vietnam, Indonesia, Malaysia, Moluccas, Philippines, Sulawesi, Florida, Mexico, South America.

Exsiccata: P. Chakraborty 2093, R.Sumathi 17324 & 18527, K.Karthigeyan 6085.

49. *Pomatocalpa* J.G.S.van Breda

Pomatocalpa maculosum subsp. *andamanicum* (J.D.Hooker) Watthana, *Taiwania* 51: 8. 2006. *Cleisostoma andamanicum* J.D.Hooker, *The Flora of British India* 6: 71. 1890. *Pomatocalpa andamanicum* (J.D.Hooker) J.J.Smith, *Natuurwetenschappelijk Tijdschrift voor Nederlandsch Indië* 72: 103. 1912. (Fig. 13E)

Flower & Fruit: March-August.

Habit & Ecology: Epiphytes. Common; in inland forests and littoral forests growing on the trunks of *Dipterocarpus* spp., *Pterocarpus dalbergioides* and *Thespesia populnea* (Linnaeus) Solander ex Corrêa, at times found associated with *Pinalia bractescens*.

Distribution: Andaman & Nicobar Islands (Thothathri *et al.*, 1973).

Global distribution: India, Laos, Thailand, Malaysia, Philippines.

Exsiccata: K. Thothathri & N. Banerjee 11313, N.P.Balakrishnan 164, N.G.Nair 6949, G.Chakraborty & G.S.Lakra 12375, R.Sumathi 19726, J.Jayanthi 19481, K.Karthigeyan 19518.

Pomatocalpa spicatum J.G.S.Breda, *Genera et Species Orchidearum et Asclepiadearum* 3: t. 15. 1827. (Fig. 13F)

Flower & Fruit: April–October.

Habit & Ecology: Epiphytes. Common; in inland evergreen forests, growing on the trunks of *Knema andamanica*.

Distribution: Andaman & Nicobar Islands (Thothathri *et al.*, 1973).

Global distribution: China, India, Laos, Myanmar, Thailand, Vietnam, Indonesia, Malaysia, Moluccas, Philippines, Sulawesi.

Exsiccata: K. Thothathri & N. Banerjee 11436, N.G.Nair 6923, D.K.Hore 7590, R.Sumathi 17326 & 18700, J.Jayanthi 19411, K.Karthigeyan 6080.

50. *Porpax* J.Lindley

Porpax elwesii (H.G.Reichenbach) R.A.Rolfe, *Orchid Review* 16: 8. 1908. *Eria elwesii* H.G.Reichenbach, *The Gardeners' Chronicle & Agricultural Gazette* n.s., 19: 402. 1883. *Porpax meirax* var. *elwesii* (H.G.Reichenbach) R.C.Srivastava in *National Academy Science Letters. Allahabad* 18: 61. 1995.

Flower & Fruit: December–February.

Habit & Ecology: Epiphytes. Common; in the stunted evergreen forests on *Calophyllum austroindicum* Kostermans ex P.F.Stevens. Often found growing in dense patches on moist rock surfaces at higher elevations above 500 m.

Distribution: North Andaman.

Global distribution: India, Nepal, Cambodia, Laos, Thailand, Vietnam, Malaysia.

Exsiccata: R.Sumathi 4811.

Porpax jerdoniana (R.Wight) R.A.Rolfe, *Orchid Review* 16: 8. 1908. *Lichenora jerdoniana* R.Wight, *Icones Plantarum Indiae Orientalis* 5: t. 1738. 1851. (Fig. 13G)

Flower & Fruit: July–January.

Habit & Ecology: Epiphytes or lithophytes. Common; on the tree trunks and moist rocks in inland evergreen forests at an elevation of 300–500 m.

Distribution: North Andaman (Kalpong) (Maina *et al.*, 2000).

Global distribution: India.

Exsiccata: R.Sumathi 18629.

Porpax meirax (S.B.Parish & H.G.Reichenbach) G.King & R.Pantling, *Annals of the Royal Botanic Garden (Calcutta)* 8: 114. 1898. *Cryptochilus meirax* S.B.Parish & H.G.Reichenbach, *Transactions of the Linnean Society of London, Botany* 30: 148. 1874.

Flower & Fruit: November–January.

Habit & Ecology: Epiphytes or lithophytes. Rare; on moist rocks and tree trunks in evergreen forests at an elevation of 500-700 m.

Distribution: North Andaman (Saddle Peak) (Balakrishnan & Nair, 1976).

Global distribution: India, Myanmar, Thailand.

Note: This species has been included on the authority of Balakrishnan & Nair. This species could not be collected even after 6 years of field survey. The specimen deposited by Balakrishnan in PBL could not be traced.

51. *Pteroceras* J.C.van Hasselt ex J.C.Hasskarl

Pteroceras muriculatum (H.G.Reichenbach) P.F.Hunt, *Kew Bulletin* 24: 96.

1970. *Sarcochilus muriculatus* H.G.Reichenbach, *The Gardeners' Chronicle & Agricultural Gazette*, n.s., 15: 198. 1881. *Thrixspermum muriculatum* (H.G.Reichenbach) H.G.Reichenbach, *The Gardeners' Chronicle & Agricultural Gazette*, n.s., 16: 198. 1881. (Fig. 13H)

Flower & Fruit: April-November.

Habit & Ecology: Epiphytes. Rare; in the inland evergreen forests.

Distribution: North Andaman, South Andaman, Little Andaman (Vasudeva Rao, 1986). **Endemic**.

Exsiccata: N. Bhargava 2346, 2414, 4919 & 6552, N.G.Nair 6909, R.Sumathi 4801, K.Karthigeyan 21409.

Pteroceras teres (C.Blume) R.E.Holttum, *Kew Bulletin* 14: 271. 1960.

Dendrocolla teres C.Blume, *Bijdragen tot de flora van Nederlandsch Indië*: 289. 1825. (Fig. 13I)

Flower & Fruit: January-March.

Habit & Ecology: Epiphytes. Rare; in inland evergreen forests along streamsides.

Distribution: Great Nicobar Island (Jayanthi *et al.*, 2014).

Global distribution: India, Bangladesh, Nepal, Cambodia, Laos, Myanmar, Thailand, Vietnam, Indonesia, Malaysia, Moluccas, Philippines, Sulawesi.

Exsiccata: J.Jayanthi 19419.

Pteroceras unguiculatum (J.Lindley) H.A.Pedersen, *Nordic Journal of Botany* 12: 388. 1992. *Sarcochilus unguiculatus* J.Lindley, *Edwards's Botanical Register* 26(Misc.): 67. 1840.

Flower & Fruit: January-May.

Distribution: Andaman Islands.

Global distribution: India, Indonesia, Malaysia, Moluccas, Philippines, Sulawesi.

Exsiccata: *s. coll.* acc no. 457127 (CAL).

Note: Only one specimen is available from Andaman Island at CAL collected on 26.04.1895, without exact locality and collector's name.

52. *Rhynchostylis* C.Blume

Rhynchostylis retusa (C.Linnaeus) C.Blume, *Bijdragen tot de flora van Nederlandsch Indië*: 286. 1825. *Epidendrum retusum* C.Linnaeus, *Species Plantarum*: 953. 1753. (Fig. 13J)

Flower & Fruit: May-July.

Habit & Ecology: Epiphytes. Common; in littoral and inland forests growing on *Dipterocarpus* spp., *Pterocarpus dalbergioides* and *Lagerstroemia hypoleuca*.

Distribution: Throughout Andaman Islands.

Global distribution: China, India, Bangladesh, Nepal, Srilanka, Cambodia, Laos, Myanmar, Thailand, Vietnam, Indonesia, Malaysia, Philippines.

Exsiccata: R.Sumathi 4776, K.Karthigeyan 19517.

53. *Schoenorchis* C.G.C.Reinwardt

Schoenorchis minutiflora (H.N.Ridley) J.J.Smith, *Natuurkundig Tijdschrift voor Nederlandsch-Indië* 72: 101. 1912. *Saccolabium minutiflorum* H.N.Ridley, *Journal of the Federated Malay States Museums* 4: 71. 1909.

Flower & Fruit: September-October.

Habit & Ecology: Epiphytes. Rare; in inland evergreen forests on hill slopes above 300 m.

Distribution: North Andaman, South Andaman (Vasudeva Rao, 1986).

Global distribution: India, Thailand, Malaysia.

Exsiccata: N.P.Balakrishnan & N.G.Nair 4774, R.Sumathi 17864, K.Karthigeyan 6094.

54. *Smitinandia* R.E.Holttum

Smitinandia helferi (J.D.Hooker) L.A.Garay, *Botanical Museum Leaflets* 23: 204. 1972. *Saccolabium helferi* J.D.Hooker, *The Flora of British India* 6: 57. 1890. Flower & Fruit: January-March.

Habit & Ecology: Epiphytes. Rare; in inland evergreen forests.

Distribution: Andaman Islands (Mathew, 1998).

Global distribution: India, Cambodia, Laos, Vietnam, Malaysia.

Exsiccata: Helfer 5256 (Kew Herbarium Catalogue, 2014).

Note: One herbarium specimen is available at Kew, in which it is mentioned as Tenesserim and Andaman. However, there is no further collection of this species till date from Andaman Islands.

55. *Spathoglottis* C. Blume

Spathoglottis plicata C. Blume, *Bijdragen tot de flora van Nederlandsch Indië*: 401. 1825. (Fig. 13K)

Flower & Fruit: February–November.

Habit & Ecology: Terrestrials. Common in inland evergreen forests along streamsides and hill slopes, found abundant along East-West road on slopes and sunny areas.

Distribution: Car Nicobar, Katchal Island, Great Nicobar Island (Balakrishnan & Chakraborty, 1978).

Global distribution: Seychelles, Nansei-shoto, Taiwan, India, Bangladesh, Srilanka, Cambodia, Laos, Myanmar, Thailand, Vietnam, Indonesia, Malaysia, Moluccas, Philippines, Sulawesi, Bismarck archipelago, New Guinea, Solomon Island, Australia, Fiji, New Caledonia, Samoa, Tonga, Santa-cruz Island, Vanuato, Caroline Island, Marianas.

Exsiccata: N.P.Balakrishnan 3957 & 5741, N.G. Nair 3515, P. Chakraborty 3101 & 3214, D.K.Hore 6770 & 8207, S.K.Srivastava 14864, J.Jayanthi 19426, B.K.Sinha 16344 & 16317.

Note: A handsome hardy orchid species that could be easily cultivated in gardens.

56. *Taeniophyllum* C. Blume

Taeniophyllum andamanicum N.P.Balakrishnan & N.Bhargava, *Bulletin of the Botanical Survey of India* 20: 154 1978 (publ. 1979).

Flower & Fruit: July–August.

Habit & Ecology: Epiphytes. Rare; growing on *Tectona grandis* plantations.

Distribution: South Andaman (Baratang Island) (Balakrishnan & Bhargava, 1978). **Endemic**.

Exsiccata: N.Bhargava 5932 B – C, 2488/2.

Taeniophyllum filiforme J.J.Smith, *Bulletin de l'Institut Botanique de Buitenzorg* 7: 4. 1900. *Taeniophyllum macrorhizum* H.N.Ridley, *Flora Malay Peninsula* 4: 176. 1924. (Fig. 14A)

Flower & Fruit: June–August.

Habit & Ecology: Epiphytes. Rare; in the densely shaded inland evergreen forests.

Distribution: South Andaman (Rutland Island) (Karthigeyan *et al.*, 2012).

Global distribution: India, Thailand, Indonesia, Malaysia, Sulawesi, New Guinea.



Fig. 13

- A. *Phalaenopsis tetraspis* B. *Pinalia bractescens* C. *Podochilus microphyllus* D. *Polystachya concreta* E. *Pomatocalpa maculosum* subsp. *andamanica* F. *Pomatocalpa spicata* G. *Porpax jerdoniana* H. *Pteroceras muriculatum* I. *Pteroceras teres* J. *Rhynchostylis retusa* K. *Spathoglottis plicata*

Exsiccata: K.Karthigeyan 6086.

Notes: Kurz collected this species from South Andaman in 1867 which was deposited in Kew. After that there was no record of this extremely rare species from the Andaman Islands. It has been rediscovered after a lapse of 140 years.

57. *Thelasis* C.Blume

Thelasis pygmaea (W.Griffith) J.Lindley, *Journal of the Linnean Society, Botany* 3: 63. 1858. *Euproboscis pygmaea* W.Griffith, *Calcutta Journal of Natural History and Miscellany of the Arts and Sciences in India* 5: 372. 1845. *Thelasis pygmaea* var. *multiflora* J.D.Hooker, *The Flora of British India* 6: 86. 1890.

Flower & Fruit: April-August.

Habit & Ecology: Epiphytes. Rare; in inland evergreen forests in densely shaded places.

Distribution: North Andaman, Great Nicobar Island (Yoganarasimhan *et al.*, 1981).

Global distribution: China, India, Taiwan, Nepal, Cambodia, Myanmar, Thailand, Vietnam, Indonesia, Malaysia, Moluccas, Philippines, Sulawesi, Bismarck archipelago, New Guinea, Solomon Island.

Exsiccata: R.Sumathi 4777, J.Jayanthi 5835.

58. *Thrixspermum* J.de Loureiro

Thrixspermum hystrix (C.Blume) H.G.Reichenbach, *Transactions of the Linnean Society of London, Botany* 30: 145. 1874. *Dendrocolla hystrix* C.Blume, *Bijdragen tot de flora van Nederlandsch Indië*: 291. 1825.

Flower & Fruit: June-September.

Habit & Ecology: Epiphytes. Common; in inland evergreen forests in dense shaded places.

Distribution: North Andaman, South Andaman, Great Nicobar Island (Balakrishnan & Bhargava, 1977).

Global distribution: India, Laos, Thailand, Indonesia, Philippines, Sulawesi.

Exsiccata: N.Bhargava 2488 (CAL), D.K.Hore 8782, R.Sumathi 4775, K.Karthigeyan 6090.

Thrixspermum merguense (J.D.Hooker) C.E.O.Kuntze, *Revisio Generum Plantarum* 2: 682. 1891. *Sarcochilus merguensis* J.D.Hooker, *The Flora of British India* 6: 40. 1890. (Fig. 14B)

Flower & Fruit: February-May.

Habit & Ecology: Epiphytes. Common; in inland forests in densely shaded places. Distribution: Andaman Islands, Great Nicobar Island (Mathew & Abraham, 1996; Maina *et al.*, 1998).

Global distribution: India, Taiwan, Laos, Myanmar, Vietnam, Indonesia, Malaysia, Philippines.

Exsiccata: *J.Jayanthi* 5845, *K.Karthigeyan* 6087.

Thrixspermum trichoglottis (J.D.Hooker) C.E.O.Kuntze, *Revisio Generum Plantarum* 2: 682. 1891. *Sarcochilus trichoglottis* J.D.Hooker, *The Flora of British India* 6: 39. 1890. *Dendrocolla trichoglottis* (J.D.Hooker) H.N.Ridley, *Journal of the Linnean Society, Botany* 32: 381. 1896. *Thrixspermum album* (H.N.Ridley) F.R.R.Schlechter, *Orchis* 5: 56. 1911.

Flower & Fruit: March-June.

Habit & Ecology: Epiphytes. Rare; in inland evergreen and littoral forests.

Distribution: Car Nicobar and Katchal Island.

Global distribution: China, India, Bangladesh, Laos, Myanmar, Thailand, Vietnam, Indonesia, Malaysia.

Exsiccata: *P.Chakraborty* 1229 & 5522.

59. *Thunia* H.G.Reichenbach

Thunia alba (J.Lindley) H.G.Reichenbach, *Botanische Zeitung (Berlin)* 10: 764. 1852. *Phaius albus* J.Lindley in N.Wallich, *Plantae Asiaticae Rariores* 2: 85. 1831. (Fig. 14C)

Flower & Fruit: June-August.

Habit & Ecology: Epiphytes. Rare; on tree trunks along streams in evergreen forests.

Distribution: North Andaman, South Andaman (Balakrishnan & Nair, 1976).

Global distribution: China, India, Nepal, Myanmar, Thailand, Vietnam, Malaysia.

Exsiccata: *N.G. Nair* 3764, *R.Sumathi* 4768.

60. *Trias* J.Lindley

Trias oblonga J.Lindley, *Genera and Species of Orchidaceous Plants*: 60. 1830.

Flower & Fruit: January-March.

Habit & Ecology: Epiphytes. Rare; along the streams and in stunted forests growing on trunks of *Pandanus dubius* C.Sprengel, and *Acronychia pedunculata* (Linnaeus) F.Miquel.

Distribution: North Andaman (Kalpong) (Diwakar *et al.*, 2006).

Global distribution: India, Bangladesh, Myanmar, Thailand.

Exsiccata: *R.Sumathi* 21074.

61. *Trichoglottis* C. Blume

Trichoglottis cirrhifera J.E.Teijsmann & S.Binnendijk, *Natuurkundig Tijdschrift voor Nederlandsch-Indië* 5: 493. 1854.

Flower & Fruit: March-September.

Habit & Ecology: Epiphytes. Common; in inland evergreen forests along streamsides and interior littoral forests.

Distribution: Andaman Islands & Great Nicobar (Thothathri *et al.*, 1973).

Global distribution: India, Cambodia, Laos, Thailand, Indonesia, Malaysia.

Exsiccata: K. Thothathri & N. Banerjee 11307 (CAL), R. Sumathi 17328 & 17332, J. Jayanthi 5837, K. Karthigeyan 6092.

Trichoglottis orchidea (J.Koenig) L.A.Garay, *Botanical Museum Leaflets* 23: 209. 1972. *Epidendrum orchideum* J.Koenig in A.J.Retzius, *Observationes Botanicae* 6: 48. 1791. *Trichoglottis quadricornuta* S.Kurz, *Journal of the Asiatic Society of Bengal*, 45(2): 156. 1876. (Fig. 14E)

Flower & Fruit: January-June.

Habit & Ecology: Epiphytes. Common; in inland evergreen forests growing on *Chydenanthus excelsus* (Blume) Miers, *Artocarpus chama* etc. Found abundant along the East-West road.

Distribution: Car Nicobar, Katchal Island and Great Nicobar Island (Hore & Balakrishnan, 1985). **Endemic**.

Exsiccata: N.P.Balakrishnan 2919, M.K.Vasudeava Rao 7418 (CAL), N.G.Nair 3505 & 2646 (CAL), R.P. Dwivedi 7870, J.Jayanthi 18394 & 19424.

62. *Tropidia* J.Lindley

Tropidia angulosa (J.Lindley) C.Blume, *Collection des Orchidées* 122. 1859.

Cnemidia angulosa J.Lindley, *Edwards's Botanical Register* 19: t. 1618. 1833.

Flower & Fruit: August-November.

Habit & Ecology: Terrestrials. Rare; in the semi-evergreen and evergreen forests.

Distribution: Little Andaman Island (Rasingam *et al.*, 2008).

Global distribution: China, India, Taiwan, Bangladesh, Myanmar, Thailand, Vietnam, Indonesia, Malaysia, Philippines.

Exsiccata: L. Rasingam 20958.

Tropidia bambusifolia (G.H.K.Thwaites) H.Trimen, *A Catalogue of the Indigenous and Exotic Plants Growing in Ceylon*: 90. 1885. *Cnemidia bambusifolia* G.H.K.Thwaites, *Enumeratio Plantarum Zeylaniae*: 314. 1861. *Tropidia thwaitesii* J.D.Hooker, *The Flora of British India* 6: 93. 1890.

Flower & Fruit: July-November.

Habit & Ecology: Terrestrials. Rare; in the stunted hill top evergreen forests.

Distribution: North Andaman (Kalpong) (Lakra *et al.*, 2000).

Global distribution: India, Srilanka.

Exsiccata: R.Sumathi 4823.

Tropidia curculigoides J.Lindley, *Genera and Species of Orchidaceous Plants*: 497. 1840.

Flower & Fruit: September-November.

Habit & Ecology: Terrestrials. Rare; in the inland evergreen forests along shaded areas.

Distribution: South Andaman (Vasudeva Rao, 1986).

Global distribution: China, India, Taiwan, Bangladesh, Cambodia, Laos, Myanmar, Thailand, Vietnam, Indonesia, Malaysia, Sulawesi, New Guinea, New Caledonia.

Exsiccata: K.Karthigeyan 6088.

63. *Vanda* W.Jones ex R.Brown

Vanda ampullacea (W.Roxburgh) L.M.Gardiner, *Phytotaxa* 61: 48. 2012.

Aerides ampullacea W.Roxburgh, *Flora indica* 3: 476. 1832. *Ascocentrum ampullaceum* (W.Roxburgh) F.R.R.Schlechter, *Repertorium Specierum Novarum Regni Vegetabilis, Beihefte* 1: 975. 1913. (Fig. 14F)

Flower & Fruit: March-July.

Habit & Ecology: Epiphytes. Rare; in inland stunted evergreen forests at elevation of 400-700 m.

Distribution: North Andaman (Saddle Peak) (Balakrishnan & Nair, 1976).

Global distribution: China, India, Bangladesh, Nepal, Laos, Myanmar, Thailand, Vietnam.

Exsiccata: N.P.Balakrishnan 5400, R.Sumathi 17319.

64. *Vanilla* P.Miller

Vanilla albida C.Blume, *Catalogus*: 100. 1823. (Fig. 14D)

Flower & Fruit: March-June.

Habit & Ecology: Climbers. Common; in inland forests, along slopes, streamsides and in swampy areas.

Distribution: Andaman & Nicobar Islands.

Global distribution: India, Indonesia.

Exsiccata: N.P.Balakrishnan 3833, M.K.Vasudeva Rao 8619, J.Jayanthi 5839, K.Karthigeyan 6089, R.Sumathi 18572.

Vanilla andamanica R.A.Rolfe, *Bulletin of Miscellaneous Information Kew* 1918: 237. 1918.

Flower & Fruit: March-April.

Habit & Ecology: Climbers. Rare; in inland evergreen forests.

Distribution: Middle Andaman (Betapur). **Endemic.**

Exsiccata: *C.E.Parkinson* 1139.

Vanilla sanjappae L.Rasingam, R.P.Pandey, J.J.Wood & S.K.Srivastava, *Orchid Review* 115: 350. 2007.

Flower & Fruit: April-May.

Habit & Ecology: Climbers. Rare; in semi-evergreen forests at an elevation of about 50 m.

Distribution: Little Andaman (Rasingam *et al.*, 2007). **Endemic.**

Exsiccata: *L. Rasingam* 20990.

65. *Vrydagzynea* C.Blume

Vrydagzynea albida (C.Blume) C.Blume, *Collection des Orchidées*: 71. 1858.

Hetaeria albida C.Blume, *Bijdragen tot de flora van Nederlandsch Indië*: 410. 1825.

Vrydagzynea viridiflora J.D.Hooker, *The Flora of British India* 6: 96. 1890.

Flower & Fruit: May-August.

Habit & Ecology: Terrestrials. Rare; in lowland inland forests and shaded streamsides.

Distribution: Great Nicobar Island (Balakrishnan & Chakraborty, 1978).

Global distribution: India, Bangladesh, Myanmar, Thailand, Vietnam, Indonesia, Malaysia, Philippines, New Guinea.

Exsiccata: *N.P.Balakrishnan* 3979/1.

Note: The densely crowded subcapitate spikes with prominent bracts and the presence of stalked club-shaped glands within the spur are distinctive characters of this genus.

66. *Zeuxine* J.Lindley

Zeuxine affinis (J.Lindley) G.Bentham ex J.D.Hooker, *The Flora of British India* 6: 108. 1890. *Monochilus affinis* J.Lindley, *Genera and Species of Orchidaceous Plants*: 487. 1840.

Flower & Fruit: January-April.

Habit & Ecology: Terrestrials. Rare; on deciduous forest floors.

Distribution: South Andaman (Baratang Island, towards mud volcano) (Rasingam *et al.*, 2008).

Global distribution: China, India, Bangladesh, Nepal, Taiwan, Laos, Myanmar, Thailand, Vietnam, Malaysia.

Exsiccata: *L. Rasingam* 17594.

Zeuxine andamanica G.King & R.Pantling, *Journal of the Asiatic Society of Bengal* 66: 599. 1897. (Fig. 14G)

Flower & Fruit: August-October.

Habit & Ecology: Terrestrials. Rare; in the moist places of inland evergreen forests.

Distribution: North Andaman, South Andaman. **Endemic.**

Exsiccata: *King's collector* 244 (CAL), *K.Karthigeyan* 19273, *R.Sumathi* 17811.

Zeuxine nervosa (N.Wallich ex J.Lindley) G.Bentham ex H.Trimen, *Journal of the Ceylon Branch of the Royal Asiatic Society* 9: 90. 1885. *Monochilus nervosus* N.Wallich ex J.Lindley, *Genera and Species of Orchidaceous Plants*: 487. 1840. *Zeuxine dhanikariana* V.Main, V.Lalitha & P.V.Sreekumar, *Journal of the Economic and Taxonomic Botany* 25: 21. 2001.

Flower & Fruit: March-May.

Habit & Ecology: Terrestrials. Rare; as an undergrowth in open fringes of evergreen forests.

Distribution: South Andaman (Dhanikhari), Little Andaman. (Maina *et al.*, 2001; Mathew *et al.*, 2004).

Global distribution: China, India, Bangladesh, Nepal, Srilanka, Taiwan, Cambodia, Laos, Thailand, Vietnam, Philippines, New Guinea.

Exsiccata: *G.K.Upadhyay* 37534, *V.Main & P.V.Sreekumar* 18433.

Zeuxine rolfiana G.King & R.Pantling, *Journal of the Asiatic Society of Bengal* 66: 599. 1897.

Flower & Fruit: February-March.

Habit & Ecology: Terrestrial. Rare, in inland evergreen forests.

Distribution: South Andaman (Dhanikhari) (Vasudeva Rao, 1986). **Endemic.**

Exsiccata: *King* acc.no. 459476 (CAL).

Doubtful / Excluded Species:

Aerides ringens (J.Lindley) C.E.C.Fischer

Note: The specimen identified as *A. ringens* is a misidentification of *A. emericii*. Hence, *A. ringens* is excluded here.



Fig. 14

A. *Taeniophyllum filiforme* B. *Thrixspermum merguense* C. *Thunia alba* D. *Vanilla albida*
E. *Trichoglottis orchidea* F. *Vanda ampullacea* G. *Zeuxine andamanica*

***Cleisostoma striolatum* (H.G.Reichenbach) L.A.Garay**

Note: This species is excluded as it is a misidentification for *Cleisostoma uraiense*.

***Habenaria acuminata* (Thwaites) Trimen**

Note: This species is included by Pandey & Diwakar (2008). There is no specimen available from Andamans at PBL & CAL. Its presence in A & N Islands is doubtful.

***Dendrobium tortile* J.Lindley**

Note: Recorded in Andaman islands, but no specimen is available from Andamans at PBL & CAL. The occurrence of this species in Andaman & Nicobar Islands is still doubtful.

***Dendrobium monticola* P.F.Hunt & V.S.Summerhayes**

Note: This species is included by Pandey & Diwakar (2008). Its presence in A & N Islands is doubtful and needs fresh collections for confirmation.

***Gastrochilus obliquus* (J.Lindley) C.E.O.Kuntze**

Note: This species is given in Kew WCSP, for A & N islands, however its occurrence has not been confirmed yet since there is no collection from the Islands.

***Luisia amesiana* R.A.Rolfe**

Note: The available herbarium sheets are from Burma. Its presence in Andaman Islands is doubtful and needs further exploration.

***Luisia unguiculata* J.J.Smith**

Note: This species is included by Pandey & Diwakar (2008). Its presence in A & N Islands is doubtful and needs fresh collections for confirmation.

***Luisia tenuifolia* C.Blume**

Note: This species is given in Kew WCSP, for A & N islands, however its occurrence has not been confirmed yet.

***Pinalia affinis* (W.Griffith) P.Ormerod**

Note: This species is reported from Mergue in *Flora of British India* (1890). It could be probably a misinterpretation for Andaman region.

***Peristylus mannii* (H.G.Reichenbach) S.M.Mukerjee**

Note: No specimen is available from A & N Islands. Its occurrence is doubtful.

Thrixspermum amplexicaule (C.Burm.) H.G.Reichenbach

Note: No collection is available from Andaman & Nicobar Islands.

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